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PHYSICAL AND CHEMICAL DATA. CATO EXPEDITION. LEG VI, 7 NOVEMBER--ETC(U)  
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# data report

PHYSICAL AND CHEMICAL DATA

Cato Expedition

Leg VI, 7 November - 16 December 1972

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SIO Reference 79-3  
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PHYSICAL AND CHEMICAL DATA REPORT Cato Ex Leg VI 79-3

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  The purpose of Leg VI of the Cato expedition was to study the deep circulation of the Southwestern Atlantic Ocean. From 7 November to 16 December 1972, Nansen bottle casts and <u>in situ</u> vertical profiles of salinity and temperature (STD lowerings) were made from the Scripps Institution of Oceanography Research Vessel <u>Melville</u> in the region of the Rio Grande Rise. Samples were taken for...		

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⑥ PHYSICAL AND CHEMICAL DATA,  
Cato Expedition,  
Leg VI, 7 November - 16 December 1972,

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⑪ 15 Apr 79

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W. A. Nierenberg  
W. A. Nierenberg, Director

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reactive silicate by the method of Strickland and Parsons (1968); nitrite by the method of Bendschneider and Robinson (1952) and nitrate by the method of Wood et al. (1967).

The observed data has been evaluated using the method described by Klein (1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparison with adjacent observations.

#### In situ Salinity/Temperature/Depth Recorder (STD) Data

A Bissett-Berman (HYTECH) Model 9006 STD was used for most lowerings. The exceptions are lowerings 1 through 7 and 69 through 79 when a Plessey Environmental Systems Model 9040 CSTD was used. Data was recorded in analog format on the Leeds-Northrup analog recorder and in digital, at an interval of approximately one instantaneous count every 2 meters, on the shipboard IBM 1800 computer. With few exceptions, the data was recorded only during descent.

Precise PDR observations of bottom depths were recorded and a pinger was placed on the wire below the STD. Comparison of these records with the frequencies recorded by the STD on the deep lowerings was used to determine a linear correction to the depth, calculated from the pressure.

After initial smoothing of the STD data, second-order polynomial corrections to the temperature and salinity were determined by comparison with the observed Nansen bottle data. It should be noted that the two STD models, 9006 and 9040, deviated from their respective hydrographic data quite differently. Furthermore, the best fit of an individual lowering can be quite different even when the same instrument is used, primarily due to the difference (4 to 6 hours at approximately 5000 meters) between the time the

STD reaches the greatest depth and the thermometers are reversed.

All STD temperature and salinity data in this report is tabulated to the nearest hundredth from both shallow and deep lowerings.

#### TABULATED DATA

The time reported is Greenwich Mean Time. For STD data it is the "start down" time of the first lowering, usually the deeper, and for bottle casts it is the time of messenger release, with the first and last release times listed for multiple casts.

Bottom depths, determined acoustically, have been corrected using Matthews' (1939) tables and are reported in meters. Weather and dominant waves are coded using the National Oceanographic Data Center (NODC) method.

Data from the bottle casts appears on the even-numbered pages. The observed data was tabulated on the left of the page with computed values of thermosteric anomaly. Temperature, salinity, and oxygen interpolated at standard levels with computed values of sigma-t, thermosteric anomaly, and geopotential anomaly were included on the right.

Data from the STD lowerings appears on the facing odd-numbered pages. Temperature and salinity are tabulated at closer standard intervals than in previous reports. However, some depth intervals may not appear on stations where "spiking" caused data to be rejected.

The column headings are to be interpreted as follows:

Z	Depth	Meters
T	Temperature	°C
S	Salinity	‰
O2	Dissolved oxygen	ml/L
P04	"Reactive" inorganic phosphate-phosphorus	µg at/L
Si03	"Reactive" inorganic silicate-silicon	µg at/L
N02	"Reactive" nitrite-nitrogen	µg at/L
N03	"Reactive" nitrate-nitrogen	µg at/L
DT	$\delta_T$ Thermosteric anomaly	cl/ton
SIGT	$\sigma_t = (\rho_{s,t,0} - 1)10^3$ where $\rho_{s,t,0}$ is the density the parcel would have if moved isothermally to the sea surface.	g/L
DD	Geopotential anomaly, referred to the sea surface.	dyn. meters

#### FOOTNOTES

In addition to footnotes, several special notations are used without footnotes because the meaning is always the same.

A and B: After depth value indicates successively deeper casts on expedition legs which have multiple cast stations. The upper cast originating at or near surface has no letter following the depth.

P: After depth value indicates the Nansen bottles posttripped.

U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason. NOTE: "U" following STD station number indicates the up cast data are being reported.

V: Because of time differences, overlapping casts show some differences. Values not used in interpolation.

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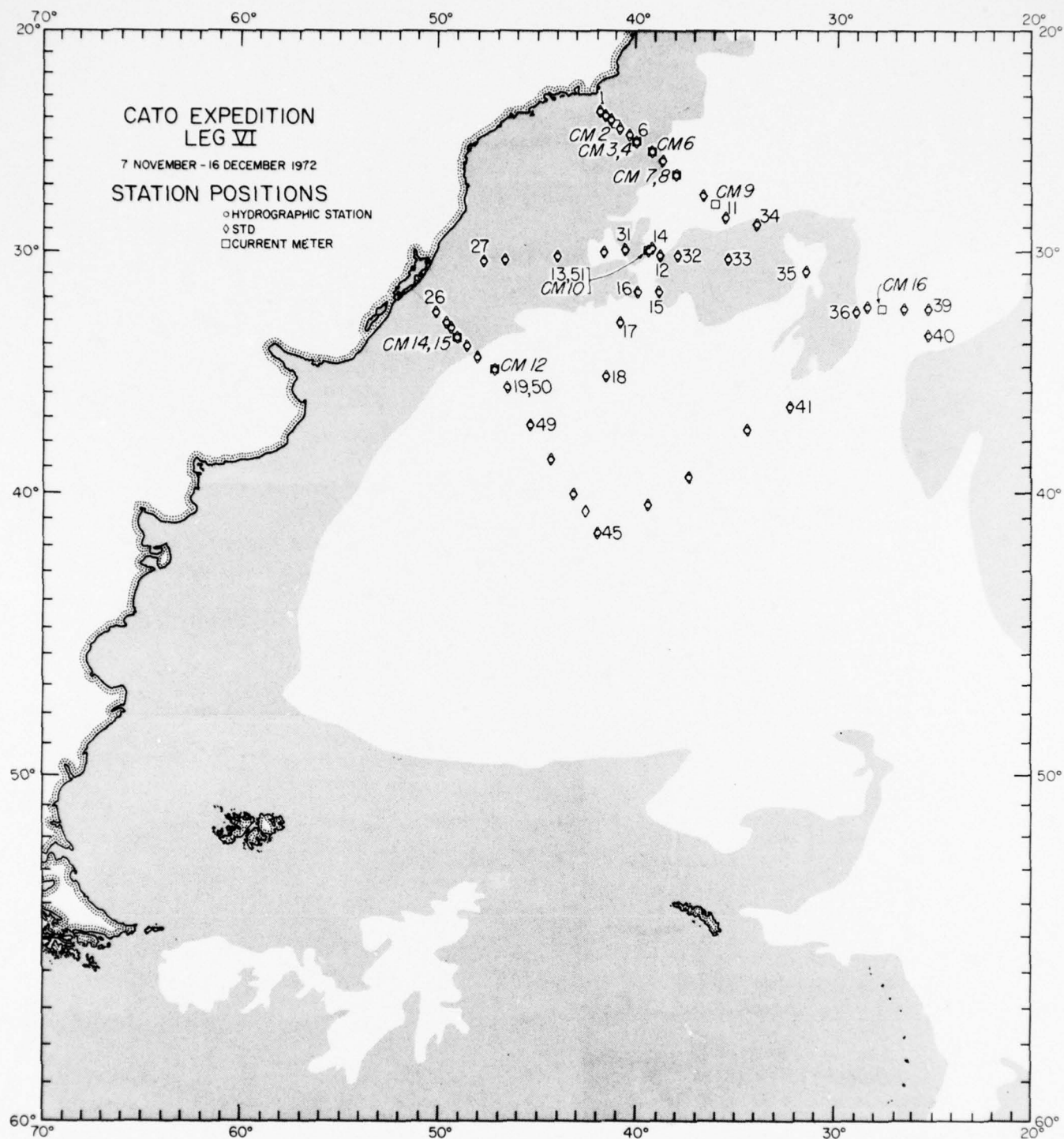


FIGURE 1

PERSONNEL

Ship's Captain:

Ferris, Noel L.

RV MELVILLE

Personnel Participating in the Collection of Data:

Reid, Joseph L. Prof.  
Bertholini, Sergio

Burgener, Bruce C.  
Coatsworth, James L.  
Costello, James P.  
Donadio, Antonio E.

Ferreira, Simon M.  
Foster, Theodore D. Dr.  
McKinney, Darryle  
McLellan, Hugh J. Dr.

Miranda, Luiz B. de

Moore, John M.  
Muus, David A.  
Nowlin, Worth D., Jr.  
Owen, Gary P.  
Patla, Susan M.  
Patzert, William C. Dr.  
Powell, William J.  
Valentine, Sarilee  
Yates, Robert E.

Chief Scientist, Professor, SIO  
Commander, Navy of Brazil, Brazil  
Hydrographic and Navigation Office  
Staff Research Associate, SIO  
Staff Research Associate, SIO  
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Associate Research Oceanographer, SIO  
Electronic Technician, SIO  
Senior Engineering Aide, SIO  
Marine Technician, SIO

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
23 54.2S		41 50.0W		11/ 8/72		0452 GMT				843M		050		1KMT		1		140 8	
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	STGT	DT	DD				
0	22.36	35.982	5.05	0.13	1.0	0.01	0.2	308.0	0	22.36	35.982	5.05	24.880	308.0	0.000				
10	22.38	35.978	5.05	0.10	1.7	0.00	0.0	308.8	10	22.38	35.978	5.05	24.872	308.8	0.031				
21	22.37	35.977	5.11	0.16	1.5	0.01	0.1	308.6	20	22.37	35.976	5.10	24.873	308.7	0.062				
54	20.60	36.322	5.08	0.18	1.0	0.02	0.0	237.0	30	22.07	36.081	5.10	25.039	292.9	0.092				
86	17.85	35.957	4.73	0.43	2.1	0.45	2.7	195.9	50	20.91	36.284	5.08	25.513	247.8	0.146				
117	15.88	35.652	4.63	0.42	2.5	0.10	5.6	173.7	75	18.61	36.112	4.85	25.937	207.5	0.204				
170	14.20	35.412	4.75	0.78	2.8	0.04	7.6	155.9	100	16.87	35.807	4.66	26.162	184.3	0.254				
222	13.69	35.355	4.84	0.65	3.3	0.03	8.8	149.9	125	15.52	35.598	4.64	26.334	169.8	0.299				
279	12.15	35.136	4.71	0.88	5.1	0.02	12.4	136.6	150	14.64	35.473	4.68	26.433	160.4	0.341				
356	10.53	34.903	4.68	1.20	7.1	0.00	16.2	125.3	200	13.89	35.378	4.82	26.521	152.1	0.422				
433	8.72	34.690	4.45	1.49	11.6		21.4	112.4	250	12.98	35.253	4.79	26.611	143.6	0.499				
510	7.00	34.511	4.70	1.73	15.1		24.4	101.5	300	11.69	35.069	4.70	26.720	133.3	0.572				
587	5.69	34.395	4.87	1.84	19.0	0.00	27.1	93.9	400	9.50	34.777	4.53	26.882	117.9	0.705				
665	5.42	34.380	4.90	1.89	20.7		27.6	91.9	500	7.21	34.532	4.66	27.042	102.8	0.624				
745	5.16	34.363	4.91	1.92	22.4		28.5	90.2	600	5.65	34.396	4.88	27.141	93.3	0.929				
782	5.093	34.361	4.92	1.91	22.4		28.4	89.6	700	5.30	34.372	4.90	27.165	91.1	1.030				
824	4.920	34.351	4.94	1.97	23.2	0.00	28.6	88.5	800	5.03	34.362	4.93	27.188	89.2	1.129				

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
24 07.8S		41 38.0W		11/ 8/72		0930 1200		GMT	1776M	050	1KMT	1	150 7						
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	STGT	DT	DD				
0	24.37	37.036	4.79	0.06	0.8	0.00	0.1	288.0	0	24.37	37.036	4.79	25.090	288.0	0.000				
10	24.40	37.033	4.73	0.04	0.8	0.00	0.0	289.1	10	24.40	37.033	4.73	25.079	289.1	0.029				
20	24.39	37.034	4.71	0.04	1.0	0.00	0.1	288.7	20	24.39	37.034	4.71	25.082	288.7	0.058				
31	24.38	37.031	4.70	0.07	1.0	0.00	0.0	288.6	30	24.38	37.030	4.70	25.083	288.6	0.087				
63	22.24	36.814	4.83	0.08	0.7	0.00	0.0	244.7	50	23.25	36.918	4.77	25.334	264.8	0.142				
93	20.91	36.552	4.85	0.19	1.0	0.07	0.4	228.4	75	21.73	36.724	4.84	25.624	237.3	0.206				
125	18.43	36.071	4.74	0.25	1.5	0.02	1.7	201.4	100	20.38	36.443	4.83	25.778	222.6	0.264				
177	15.96	35.661	4.83	0.60	2.0	0.02	4.1	174.7	125	18.43	36.071	4.74	26.001	201.4	0.318				
230	14.02	35.371	4.72	0.66	3.5	0.03	8.5	155.3	150	17.09	35.839	4.77	26.155	186.8	0.368				
288	13.13	35.253	4.72	0.76	4.2	0.02	9.9	146.5	200	15.02	35.515	4.79	26.383	165.2	0.459				
367	11.32	35.003	4.72	1.10	6.0		14.2	131.5	250	13.66	35.323	4.72	26.526	151.6	0.541				
445	9.36	34.761	4.57	1.33	9.8		19.4	116.9	300	12.88	35.218	4.72	26.603	144.3	0.619				
524	7.80	34.591	4.69	1.66	12.4		23.0	106.4	400	10.48	34.894	4.65	26.806	125.1	0.762				
602	6.45	34.460	4.79	1.74	16.1		25.9	98.2	500	8.24	34.638	4.64	26.973	109.2	0.888				
644A	5.84	34.446 U	4.68U	1.82	17.6		26.4		600	6.48	34.464	4.79	27.088	98.4	1.001				
682	5.44	34.379	4.89	1.89	19.6		27.7	92.2	700	5.26	34.369	4.89	27.167	90.9	1.104				
762	4.74	34.345	4.90	1.96	24.1		29.1	87.0	800	4.55	34.343	4.85	27.227	85.2	1.200				
772A	4.80 V	34.348	4.93	2.01	24.2		28.8		1000	3.77	34.347	4.82	27.312	77.2	1.379				
801	4.55		4.84	1.95	25.2		29.8		1200	3.50	34.441	4.51	27.433	65.7	1.539				
846	4.29	34.335	4.91	2.04	28.7		30.0	83.1	1500	3.63	34.737	4.56	27.636	46.4	1.740				
848A	4.32	34.336	4.87	1.94	28.0		30.4	83.3	1750	3.83	34.875	5.06	27.726	37.9	1.880				
925A	3.90	34.34	4.86	2.10	32.5		31.2	78.6											
1001A	3.77	34.346	4.82	2.15	34.4		31.4	77.1											
1052A	3.69	34.357	4.77	2.16	37.0		31.6	75.6											
1129A	3.48	34.381	4.67	2.20	41.2		32.3	71.8											
1232A	3.24	34.472	4.44	2.20	48.0		33.1	62.8											
1335A	3.31	34.573	4.42	2.14	48.0		32.0	55.8											
1440A	3.505	34.676	4.46	1.99	42.8		30.1	49.8											
1547A	3.718	34.781	4.67	1.79	34.8		27.0	43.9											
1653A	3.845	34.853	4.95	1.68	29.7		25.1	39.7											
1734A	3.823	34.875	5.03	1.60	28.2		24.5	37.8											
1761A	3.839	34.876	5.09	1.60	27.7		25.2	37.9											



1 STD						CATO EXPEDITION VI						2 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
23 54.2S		41 50.0W		11/08/72		0419 GMT		24 07.8S		41 32.0W		11/08/72		1056 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	22.29	35.98	24.899	306.3	0.000	0	24.03	36.96	25.134	283.6	0.000	0	24.03	36.96	25.134	283.6	0.000
10	22.28	35.98	24.902	306.0	0.031	10	24.05	36.97	25.136	283.6	0.028	10	24.05	36.97	25.136	283.6	0.028
20	22.25	35.98	24.910	305.2	0.061	20	24.06	36.97	25.133	283.9	0.057	20	24.06	36.97	25.133	283.9	0.057
30	22.19	36.09	25.010	295.6	0.091	30	24.07	36.97	25.130	284.2	0.085	30	24.07	36.97	25.130	284.2	0.085
40	21.81	36.24	25.231	274.6	0.120	40	23.83	36.90	25.148	282.4	0.114	40	23.83	36.90	25.148	282.4	0.114
50	21.27	36.32	25.442	254.6	0.147	50	22.78	36.79	25.372	261.1	0.141	50	22.78	36.79	25.372	261.1	0.141
60	20.49	36.28	25.624	237.3	0.171	60	22.19	36.75	25.511	248.0	0.167	60	22.19	36.75	25.511	248.0	0.167
70	19.76	36.24	25.788	221.7	0.195	70	21.85	36.68	25.554	243.9	0.192	70	21.85	36.68	25.554	243.9	0.192
80	18.44	35.97	25.922	209.0	0.216	80	21.11	36.62	25.659	233.9	0.216	80	21.11	36.62	25.659	233.9	0.216
90	17.75	35.92	26.055	196.3	0.237	90	20.92	36.54	25.705	229.5	0.239	90	20.92	36.54	25.705	229.5	0.239
100	17.67	35.93	26.082	193.7	0.257	100	20.72	36.48	25.714	228.7	0.263	100	20.72	36.48	25.714	228.7	0.263
125	15.62	35.47	26.213	181.3	0.305	125	18.63	35.99	25.889	212.1	0.319	125	18.63	35.99	25.889	212.1	0.319
150	14.53	35.46	26.447	159.2	0.348	150	17.29	35.81	26.083	193.7	0.371	150	17.29	35.81	26.083	193.7	0.371
200	13.77	35.38	26.547	149.7	0.428	200	14.91	35.47	26.371	166.3	0.463	200	14.91	35.47	26.371	166.3	0.463
250	12.72	35.23	26.645	140.3	0.504	250	13.21	35.21	26.531	151.2	0.546	250	13.21	35.21	26.531	151.2	0.546
300	11.44	35.03	26.737	131.6	0.575	300	12.82	35.19	26.594	145.1	0.624	300	12.82	35.19	26.594	145.1	0.624
350	10.43	34.91	26.826	123.1	0.643	350	11.73	35.01	26.667	138.3	0.659	350	11.73	35.01	26.667	138.3	0.659
400	9.25	34.80	26.941	112.3	0.705	400	10.41	34.85	26.783	127.2	0.770	400	10.41	34.85	26.783	127.2	0.770
450	8.24	34.63	26.968	109.8	0.765	450	8.87	34.68	26.909	115.4	0.835	450	8.87	34.68	26.909	115.4	0.835
500	7.05	34.52	27.055	101.5	0.822	500	7.89	34.56	26.966	110.0	0.895	500	7.89	34.56	26.966	110.0	0.895
550	6.45	34.47	27.097	97.5	0.876	550	7.01	34.51	27.053	101.7	0.953	550	7.01	34.51	27.053	101.7	0.953
600	5.52	34.39	27.152	92.3	0.927	600	6.27	34.42	27.082	99.0	1.007	600	6.27	34.42	27.082	99.0	1.007
650	5.35	34.40	27.181	89.6	0.976	650	5.80	34.40	27.126	94.8	1.060	650	5.80	34.40	27.126	94.8	1.060
700	5.28	34.39	27.181	89.5	1.025	700	5.16	34.34	27.156	91.9	1.111	700	5.16	34.34	27.156	91.9	1.111
750	5.06	34.36	27.183	89.3	1.074	750	4.89	34.34	27.187	89.0	1.160	750	4.89	34.34	27.187	89.0	1.160
800	5.02	34.36	27.188	88.9	1.123	800	4.53	34.32	27.212	86.7	1.208	800	4.53	34.32	27.212	86.7	1.208
850	4.79	34.35	27.206	87.2	1.171	850	4.29	34.33	27.246	83.5	1.254	850	4.29	34.33	27.246	83.5	1.254
						900	4.02	34.33	27.274	80.8	1.300	900	4.02	34.33	27.274	80.8	1.300
						950	3.84	34.33	27.292	79.0	1.344	950	3.84	34.33	27.292	79.0	1.344
						1000	3.76	34.35	27.316	76.7	1.387	1000	3.76	34.35	27.316	76.7	1.387
						1100	3.56	34.36	27.344	74.1	1.471	1100	3.56	34.36	27.344	74.1	1.471
						1200	3.31	34.45	27.440	65.0	1.549	1200	3.31	34.45	27.440	65.0	1.549
						1300	3.27	34.54	27.515	57.9	1.620	1300	3.27	34.54	27.515	57.9	1.620
						1400	3.44	34.65	27.586	51.1	1.684	1400	3.44	34.65	27.586	51.1	1.684
						1500	3.61	34.73	27.633	46.7	1.745	1500	3.61	34.73	27.633	46.7	1.745
						1600	3.79	34.82	27.686	41.6	1.803	1600	3.79	34.82	27.686	41.6	1.803
						1700	3.84	34.87	27.721	38.4	1.858	1700	3.84	34.87	27.721	38.4	1.858
						1779	3.84	34.88	27.729	37.6	1.900	1779	3.84	34.88	27.729	37.6	1.900

RV MELVILLE										CATO EXPEDITION VI										
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES		
24 20.9S		41 18.2W		11/ 8/72		1939 2213		GMT		2299M		070		18KT		1		050 8		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	P04	SI0T	DT	DD				
0	23.08	36.789	4.93	6.03	1.0	0.01	0.0	269.5	0	23.08	36.789	4.93	25.285	269.5	0.000					
9	23.11	36.789	4.59	0.02	0.8	0.00	0.0	270.5	10	23.11	36.787	4.58	25.276	270.2	0.027					
20	23.09	36.792	4.43	0.02	0.8	0.00	0.0	269.5	20	23.09	36.792	4.43	25.284	269.5	0.054					
30	23.09	36.791	4.77	0.04	1.0	0.00	0.0	269.6	30	23.09	36.791	4.77	25.283	269.6	0.061					
62	22.28	36.873	4.85	0.05	1.0	0.00	0.0	241.5	50	22.66	36.848	4.82	25.454	253.4	0.134					
93	21.47	36.685	5.16	0.08	0.8	0.07	0.1	233.4	75	21.91	36.800	5.01	25.629	236.7	0.196					
125	21.14	36.612	4.73	0.10	0.8	0.16	0.0	230.1	100	21.42	36.670	5.09	25.669	232.9	0.255					
177	18.57	36.101	4.87	0.35	1.3	0.01	2.2	202.6	125	21.14	36.612	4.73	25.699	230.1	0.314					
229	16.15	35.702	4.82	0.48	1.7	0.01	3.7	175.9	150	20.05	36.383	4.75	25.821	218.5	0.372					
266	14.74	35.471	4.87	0.55	2.5	0.00	6.0	162.7	200	17.42	35.903	4.79	26.123	189.9	0.477					
363	13.25	35.273	4.80	0.76	3.6		9.7	147.4	250	15.54	35.601	4.84	26.332	170.0	0.570					
433A	11.41	35.011	4.490	1.05	6.2	0.01	14.5	132.5	300	14.47	35.434	4.87	26.440	159.8	0.657					
441	11.34	35.007	4.63	1.05	5.9		14.7	131.6	400	12.17	35.111	4.72	26.662	136.8	0.816					
519	9.51	34.777	4.57	1.37	9.3		18.5	118.1	500	10.09	34.851	4.58	26.861	121.7	0.957					
561A	8.20	34.804	4.730	1.46	10.6		19.9		600	7.53	34.560	4.52	27.018	105.0	1.080					
598	7.56	34.562	4.52	1.63	13.5	0.00	23.4	105.2	700	5.79	34.403	4.60	27.129	94.5	1.190					
638A	6.87	34.497	4.60	1.58	15.0		24.9	100.8	800	4.90	34.352	4.90	27.195	88.3	1.290					
676	6.14	34.429	4.58	1.81	16.7		26.2	96.7	1000	3.71	34.356	4.86	27.326	75.8	1.471					
716A	5.60	34.389	4.730	1.94	19.1		27.4	93.3	1200	3.41	34.467	4.49	27.444	64.7	1.629					
758	5.26	34.366	4.72	1.94	21.4		28.0	91.1	1500	3.58	34.726	4.58	27.634	46.6	1.828					
792A	4.96	34.353	4.85	1.91	23.8		29.1	88.8	1750	3.87	34.886	5.13	27.731	37.4	1.969					
795	4.88	34.346	4.91	1.98	23.5		29.1		2000	3.55	34.939	5.56	27.805	30.4	2.095					
841	4.601	34.343	4.78	2.05	26.1	0.00	29.6	85.7	2250	2.93	34.935	5.87	27.862	25.0	2.204					
843A	4.54	34.341	4.86	2.04	26.7		30.3	85.2												
919A	4.03	34.348	4.79	2.14	33.3	0.00	31.6	79.5												
1021A	3.65	34.358	4.87	2.16	37.5		32.2	75.1												
1124A	3.45	34.387	4.62	2.24	42.7		32.5	71.1												
1329A	3.33	34.607	4.39	2.13	46.0		31.1	53.4												
1536A	3.65	34.749	4.65	1.91	37.7		28.1	45.6												
1743A	3.88	34.885	5.12	1.61	27.0		24.2	37.6												
1953A	3.721	34.936	5.49	1.45	23.3		21.7	32.2												
2165A	2.994	34.938	5.82	1.40	29.2		20.7	25.4												
2219A	2.931	34.936	5.92	1.38	30.4		20.7	25.0												
2272A	2.924	34.935	5.84	1.38	31.0	0.00	20.6	25.0												

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
24 41.3S		40 49.3W		11/ 9/72		0505 0711		GMT		2768M		100		21KT		6		100 6	
Z	T	S	O2	P04	SI03	N02	N03	DT	Z	T	S	O2	SI0T	DT	DD				
0	23.10	36.729	4.91	0.00	0.8	0.00	0.0	274.3	0	23.10	36.729	4.91	25.233	274.3	0.000				
10	23.10	36.730	5.27	0.00	1.0	0.00	0.0	274.3	10	23.10	36.730	5.27	25.234	274.3	0.027				
20	23.08	36.732	4.96	0.00	0.7	0.00	0.0	273.6	20	23.08	36.732	4.96	25.242	273.6	0.055				
30	23.05	36.753	5.10	0.01	0.8	0.00	0.0	271.2	30	23.05	36.753	5.10	25.266	271.2	0.082				
61	22.36	36.811	5.05	0.03	0.8	0.00	0.0	248.2	50	22.64	36.794	5.07	25.418	256.8	0.135				
92	21.98	36.765	5.05	0.07	0.8	0.00	0.0	241.2	75	22.21	36.805	5.05	25.549	244.4	0.199				
123	20.94	36.555	5.10	0.14	0.8	0.11	0.3	229.0	100	21.79	36.726	5.06	25.607	238.8	0.260				
154	18.92	36.160	4.81	0.27	1.4	0.03	1.4	206.8	125	20.82	36.527	5.08	25.725	227.6	0.319				
207	16.84	35.793	4.82	0.36	1.5	0.01	2.9	184.7	150	19.19	36.209	4.85	25.914	209.7	0.375				
311	14.45	35.454	4.96	0.53	2.3	0.01	6.3	158.0	200	17.05	35.827	4.82	26.155	186.8	0.477				
417	12.52	35.187	4.83	0.82	4.2		11.3	139.7	250	15.69	35.620	4.88	26.314	171.7	0.571				
521	10.13	34.848	4.64	1.23	7.9	0.00	17.8	122.8	300	14.64	35.477	4.95	26.437	160.0	0.658				
585A	8.44	34.658	4.60	1.50	11.4	0.01	22.2	110.6	400	12.83	35.231	4.86	26.624	142.3	0.819				
624	7.77	34.591	4.56	1.63	13.6		24.1	106.0	500	10.65	34.916	4.67	26.793	126.3	0.964				
662A	6.82	34.513	4.54	1.80	16.9	0.00	26.0	99.0	600	8.18	34.632	4.58	26.977	108.8	1.093				
726	5.68	34.414	4.63	1.91	21.0	0.00	28.5	92.3	700	6.09	34.451	4.60	27.128	94.6	1.205				
739A	5.65	34.415	4.61	1.92	21.5		28.5		800	4.65	34.344	4.81	27.217	86.1	1.304				
816A	4.48	34.336	4.87	2.05	27.4		30.1	84.9	1000	3.57	34.409	4.46	27.381	70.6	1.477				
893A	4.09	34.357	4.65	1.99	33.6		31.5	79.4	1200	3.40	34.551	4.38	27.511	58.3	1.623				
995A	3.59	34.406	4.46	2.10	42.6		32.7	70.9	1500	3.85	34.806	4.73	27.669	43.3	1.810				
1098A	3.39	34.460	4.41	2.23	46.8	0.00	32.7	65.0	1750	3.87	34.924	5.29	27.762	34.5	1.944				
1253A	3.41	34.597	4.36	2.09	46.1		31.1	54.9	2000	3.62	34.956	5.69	27.812	29.7	2.066				
1405A	3.73	34.744	4.58	1.90	37.5		28.0	46.8	2250	3.43	34.952	5.80	27.837	27.3	2.181				
1558A	3.89	34.837	4.83	1.72	30.7		25.8	41.3	2500	3.01	34.938	5.77	27.857	25.5	2.291				
1711A	3.90	34.914	5.20	1.55	24.8		23.0	35.6	2750	2.74	34.925	5.82	27.871	24.2	2.397				
1915A	3.71	34.952	5.60	1.37	22.0	0.01	21.0	30.9											
2120A	3.48	34.956	5.77	1.32	22.8		20.3	28.5											
2326A	3.24	34.950	5.82	1.31	25.6		20.2	26.7											
2534A	2.965	34.936	5.76	1.35	29.9		20.6	25.3											
2637A	2.842		5.80	1.37	32.0		20.7												
2690A	2.794	34.925	5.81	1.35	33.2		20.7	24.7											
2742A	2.75	34.925	5.82	1.36	34.1	0.00	20.9	24.3											

3 STD						CATO EXPEDITION VI						4 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
24 20.9S	41 18.2W	11/08/72	1644 GMT			24 41.3S	40 49.3W	11/09/72	0333 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	23.09	36.79	25.283	269.7	0.000	0	23.08	36.74	25.248	273.0	0.000	0	23.08	36.74	25.248	273.0	0.000
10	23.08	36.78	25.276	270.1	0.027	10	23.09	36.75	25.252	272.6	0.027	10	23.09	36.75	25.252	272.6	0.027
20	23.10	36.79	25.280	269.9	0.054	20	23.10	36.75	25.249	272.8	0.055	20	23.10	36.75	25.249	272.8	0.055
30	23.10	36.79	25.280	269.9	0.081	30	23.10	36.77	25.265	271.4	0.082	30	23.10	36.77	25.265	271.4	0.082
40	23.08	36.80	25.293	268.7	0.108	40	22.94	36.83	25.356	262.6	0.109	40	22.94	36.83	25.356	262.6	0.109
50	22.54	36.87	25.502	248.8	0.134	50	22.42	36.80	25.483	250.6	0.135	50	22.42	36.80	25.483	250.6	0.135
60	22.33	36.87	25.562	243.1	0.159	60	22.34	36.81	25.514	247.7	0.160	60	22.34	36.81	25.514	247.7	0.160
70	22.14	36.83	25.566	240.9	0.184	70	22.16	36.77	25.534	245.7	0.185	70	22.16	36.77	25.534	245.7	0.185
80	21.94	36.76	25.604	239.1	0.208	80	22.12	36.79	25.561	243.2	0.209	80	22.12	36.79	25.561	243.2	0.209
90	21.69	36.75	25.652	234.6	0.232	90	22.10	36.80	25.574	241.9	0.234	90	22.10	36.80	25.574	241.9	0.234
100	21.37	36.65	25.665	233.3	0.256	100	21.50	36.65	25.629	236.8	0.258	100	21.50	36.65	25.629	236.8	0.258
125	21.12	36.63	25.719	228.2	0.314	125	20.90	36.56	25.726	227.6	0.317	125	20.90	36.56	25.726	227.6	0.317
150	20.23	36.33	25.732	227.0	0.373	150	19.00	36.12	25.894	211.6	0.374	150	19.00	36.12	25.894	211.6	0.374
200	17.08	35.84	26.157	186.7	0.479	200	17.12	35.60	26.116	190.5	0.477	200	17.12	35.60	26.116	190.5	0.477
250	15.62	35.62	26.328	170.4	0.572	250	15.44	35.65	26.301	172.9	0.572	250	15.44	35.65	26.301	172.9	0.572
300	14.57	35.47	26.446	159.2	0.659	300	14.75	35.50	26.430	160.8	0.659	300	14.75	35.50	26.430	160.8	0.659
350	13.62	35.37	26.570	147.4	0.740	350	14.25	35.46	26.507	153.4	0.743	350	14.25	35.46	26.507	153.4	0.743
400	12.16	35.14	26.685	136.5	0.816	400	13.13	35.30	26.617	143.0	0.822	400	13.13	35.30	26.617	143.0	0.822
450	11.17	35.01	26.771	128.4	0.887	450	11.95	35.08	26.679	137.1	0.898	450	11.95	35.08	26.679	137.1	0.898
500	9.85	34.85	26.880	118.1	0.954	500	10.55	34.90	26.797	125.9	0.969	500	10.55	34.90	26.797	125.9	0.969
550	8.51	34.68	26.965	110.0	1.017	550	9.51	34.78	26.883	117.6	1.036	550	9.51	34.78	26.883	117.6	1.036
600	7.53	34.58	27.034	103.5	1.075	600	8.11	34.63	26.988	107.9	1.098	600	8.11	34.63	26.988	107.9	1.098
650A	6.77	34.51	27.086	98.6	1.131	650	7.09	34.52	27.050	102.0	1.155	650	7.09	34.52	27.050	102.0	1.155
700A	6.05	34.42	27.110	96.3	1.184	700	6.19	34.45	27.116	95.7	1.210	700	6.19	34.45	27.116	95.7	1.210
750A	5.34	34.37	27.158	91.7	1.236	750A	5.37	34.38	27.163	91.3	1.261	750A	5.37	34.38	27.163	91.3	1.261
800A	4.78	34.36	27.215	86.3	1.285	800A	4.75	34.35	27.211	86.7	1.310	800A	4.75	34.35	27.211	86.7	1.310
850A	4.44	34.35	27.241	83.9	1.331	850A	4.25	34.34	27.258	82.3	1.356	850A	4.25	34.34	27.258	82.3	1.356
900A	4.14	34.34	27.269	81.2	1.377	900A	4.04	34.37	27.304	78.0	1.401	900A	4.04	34.37	27.304	78.0	1.401
950A	3.85	34.35	27.307	77.6	1.421	950A	3.80	34.38	27.336	74.9	1.443	950A	3.80	34.38	27.336	74.9	1.443
1000A	3.31	34.42	27.416	67.3	1.623	1000A	3.62	34.41	27.378	70.9	1.483	1000A	3.62	34.41	27.378	70.9	1.483
1300A	3.24	34.53	27.510	58.4	1.695	1300A	3.39	34.46	27.440	65.0	1.560	1300A	3.39	34.46	27.440	65.0	1.560
1400A	3.42	34.67	27.604	49.4	1.759	1400A	3.41	34.57	27.526	56.9	1.629	1400A	3.41	34.57	27.526	56.9	1.629
1500A	3.53	34.71	27.625	47.5	1.819	1500A	3.48	34.64	27.574	52.3	1.694	1500A	3.48	34.64	27.574	52.3	1.694
1600A	3.74	34.79	27.668	43.4	1.878	1600A	3.71	34.74	27.631	46.9	1.755	1600A	3.71	34.74	27.631	46.9	1.755
1700A	3.87	34.86	27.710	39.4	1.934	1700A	3.86	34.80	27.663	43.8	1.813	1700A	3.86	34.80	27.663	43.8	1.813
1800A	3.88	34.90	27.741	36.5	1.986	1800A	3.89	34.86	27.708	39.6	1.869	1800A	3.89	34.86	27.708	39.6	1.869
1900A	3.83	34.92	27.762	34.5	2.040	1900A	3.91	34.91	27.746	36.0	1.922	1900A	3.91	34.91	27.746	36.0	1.922
2000A	3.66	34.94	27.795	31.4	2.090	2000A	3.81	34.94	27.780	32.8	1.972	2000A	3.81	34.94	27.780	32.8	1.972
2100A	3.23	34.95	27.845	26.6	2.136	2100A	3.72	34.95	27.797	31.2	2.021	2100A	3.72	34.95	27.797	31.2	2.021
2200A	2.96	34.94	27.863	25.0	2.178	2200A	3.59	34.96	27.818	29.2	2.068	2200A	3.59	34.96	27.818	29.2	2.068
2287A	2.65	34.93	27.865	24.8	2.213	2287A	3.47	34.96	27.830	28.1	2.114	2287A	3.47	34.96	27.830	28.1	2.114
						2300A	3.36	34.95	27.833	27.8	2.159	2300A	3.36	34.95	27.833	27.8	2.159
						2400A	3.26	34.94	27.834	27.6	2.204	2400A	3.26	34.94	27.834	27.6	2.204
						2500A	3.16	34.95	27.852	26.0	2.249	2500A	3.16	34.95	27.852	26.0	2.249
						2600A	3.01	34.94	27.856	25.4	2.292	2600A	3.01	34.94	27.856	25.4	2.292
						2700A	2.89	34.93	27.861	25.1	2.335	2700A	2.89	34.93	27.861	25.1	2.335
						2774A	2.79	34.92	27.862	25.0	2.378	2774A	2.79	34.92	27.862	25.0	2.378
							2.63	34.90	27.860	25.2	2.409		2.63	34.90	27.860	25.2	2.409

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 25 01.0S		LONGITUDE 40 23.1W		MO/DAY/YR 11/ 9/72		MESSENGER 1311 1545		TIME GMT	BOTTOM 3067M	WIND 130	SPEED 17KT	WEATHER 1	DOMINANT WAVES 010 8						
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S10T	DT	DD				
0	22.92	36.717	4.42	0.00	0.5	0.00	0.1	270.2	0	22.92	36.717	4.42	25.277	270.2	0.000				
10	22.92	36.719	5.13	0.00	0.6	0.00	0.0	270.1	10	22.92	36.719	5.13	25.278	270.1	0.027				
21	22.91	36.720	5.11	0.00	0.8	0.00	0.0	269.8	20	22.91	36.717	5.11	25.281	269.8	0.054				
32	22.89	36.725	4.97	0.02	0.7	0.00	0.0	268.8	30	22.89	36.722	5.00	25.290	269.0	0.081				
63	22.25	36.858	5.17	0.02	0.6	0.00	0.0	241.8	50	22.57	36.604	5.04	25.447	254.1	0.154				
94	21.70	36.742		0.04	0.8	0.07	0.0	235.4	75	22.02	36.824	5.15	25.616	258.0	0.196				
125	21.30	36.650	5.08	0.06	0.7	0.13	0.1	231.5	100	21.63	36.724	5.12	25.650	254.7	0.256				
156	20.55	36.483	5.07	0.11	1.0	0.06	0.6	224.1	125	21.30	36.650	5.08	25.684	231.5	0.316				
209	17.94	35.988	5.01	0.26	1.3	0.01	1.8	195.8	150	20.73	36.520	5.07	25.743	225.9	0.374				
311	14.74	35.463	4.95	0.51	2.1	0.00	6.2	163.3	200	18.42	36.071	5.02	26.005	201.0	0.484				
414	12.77	35.208	4.68	0.80	3.6	0.00	10.8	142.9	250	16.43	35.728	4.99	26.224	180.3	0.583				
469A	11.69	35.064	4.71	0.99	5.2		13.5	133.6	300	15.00	35.501	4.96	26.377	165.8	0.674				
516	10.55	34.913	4.19	1.15	6.5	0.00	16.3	124.9	400	13.00	35.237	4.71	26.594	145.2	0.839				
596A	8.46	34.653	4.63	1.51	10.9		21.5	111.3	500	10.95	34.965	4.69	26.776	127.9	0.987				
622	7.81	34.582	4.91	1.55	11.6	0.00	22.7	107.2	600	8.36	34.643	4.67	26.959	110.6	1.118				
730	5.49	34.362	5.29	1.84	17.2	0.00	27.1	94.0	700	6.05	34.413	5.18	27.104	96.9	1.232				
750A	5.18	34.334	4.64	1.89	18.8		27.3	92.6	800	4.57	34.325	4.71	27.211	86.8	1.332				
827A	4.35	34.333	4.75	2.04	25.0		29.4	85.6	1000	3.54	34.404	4.60	27.380	70.6	1.506				
905A	3.98	34.334	4.82	2.02	31.3		31.0	80.1	1200	3.40	34.526	4.40	27.501	59.3	1.653				
1007A	3.51	34.410	4.58	2.21	40.8		32.3	69.9	1500	3.81	34.815	4.65	27.681	42.2	1.838				
1134A	3.27	34.465	4.40	2.17	47.4		32.7	63.6	1750	3.85	34.934	5.40	27.772	33.6	1.970				
1286A	3.42	34.616	4.40	2.07	45.2		30.6	55.5	2000	3.59	34.959	5.70	27.817	29.2	2.090				
1539A	3.87	34.846	4.73	1.70	30.0		25.7	40.5	2250	3.25	34.949	5.86	27.842	26.8	2.203				
1743A	3.85	34.932	5.39	1.45	23.2		22.3	33.8	2500	2.97	34.938	5.80	27.860	25.2	2.511				
1896A	3.71	34.954	5.59	1.38	21.4		20.9	30.8	2750	2.77	34.926	5.74	27.870	24.3	2.417				
2100A	3.46	34.959	5.78	1.32	22.6		20.1	28.0	3000	2.48	34.906	5.58	27.879	23.4	2.521				
2306A	3.18	34.946	5.87	1.35	26.6		20.1	26.5											
2512A	2.96	34.938		1.33	29.5		20.4	25.1											
2722A	2.800	34.929	5.73	1.35	32.2		20.7	24.4											
2933A	2.544	34.911	5.81	1.40	34.6		21.2	23.6											
2986A	2.491	34.908	5.65	1.41	39.6		21.2	23.4											
3040A	2.469	34.906	5.30	1.42	41.0		21.7	23.4											

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 25 16.5S			LONGITUDE 40 01.5W			MO/DAY/YR 11/ 9/72		MESSENGER 2114 2324		TIME GMT	BOTTOM 3080M	WIND 120	SPEED 21KT	WEATHER 1	DOMINANT WAVES 120 4 5				
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S10T	DT	DD				
0	22.84	36.658	4.97	0.00	0.8	0.00	0.0	272.3	0	22.84	36.658	4.97	25.255	272.3	0.000				
10	22.85	36.665	4.98	0.00	1.0	0.01	0.0	272.1	10	22.85	36.665	4.98	25.257	272.1	0.027				
21	22.85	36.664	4.99	0.00	1.0	0.00	0.0	272.1	20	22.85	36.662	4.99	25.257	272.1	0.055				
31	22.73	36.701	4.96	0.00	0.6	0.00	0.0	266.2	30	22.75	36.695	4.96	25.311	267.0	0.082				
63	21.25	36.643	5.16	0.04	1.0	0.00	0.0	230.7	50	21.87	36.676	5.07	25.548	244.5	0.133				
94	21.15	36.612	5.11	0.04	1.0	0.03	0.0	230.3	75	21.21	36.629	5.14	25.694	230.5	0.193				
125	21.07	36.609	5.02	0.06	1.0	0.07	0.0	228.4	100	21.13	36.609	5.10	25.700	230.0	0.251				
157	20.06	36.377	4.87	0.16	1.3	0.06	0.6	219.3	125	21.07	36.609	5.02	25.716	228.4	0.310				
208	17.64	35.923	4.98	0.31	1.7	0.02	1.6	193.5	150	20.34	36.437	4.90	25.786	221.8	0.367				
311	14.96	35.544	4.97	0.46	2.0	0.00	5.3	161.9	200	18.03	35.988	4.95	26.039	197.8	0.475				
414	12.99	35.253	4.90	0.78	3.8		9.9	143.8	250	16.33	35.723	4.98	26.246	178.2	0.573				
484A	11.34	35.001	4.66	1.06	6.3		14.5	132.0	300	15.16	35.567	4.97	26.392	164.3	0.663				
517	10.73	34.922	4.62	1.14	7.2	0.00	16.0	127.3	400	13.25	35.294	4.91	26.587	145.8	0.828				
613A	8.26	34.655	4.76	1.50	11.0		21.3		500	11.04	34.962	4.63	26.757	129.7	0.977				
622	8.29	34.658	4.78	1.50	10.6		19.2	109.9	600	8.82	34.696	4.73	26.928	113.5	1.111				
727	6.04	34.418	4.94	1.80	16.7	0.00	25.3	96.3	700	6.56	34.466	4.90	27.079	99.3	1.228				
768A	5.43	34.367	5.05	1.86	19.3		27.2	93.0	800	4.99	34.343	5.02	27.177	89.8	1.332				
846A	4.47	34.327	5.58	2.04	26.4		29.6	85.5	1000	3.60	34.370	4.66	27.347	73.8	1.513				
923A	3.99	34.330	4.90	2.12	32.1		30.5	80.5	1200	3.14	34.511	4.34	27.503	59.0	1.662				
1026A	3.49	34.386	4.58	2.13	42.9		32.2	71.5	1500	3.37	34.760	4.72	27.681	42.2	1.844				
1154A	3.21	34.478	4.34	2.13	50.0		32.6	62.0	1750	3.52	34.896	5.31	27.775	33.3	1.972				
1308A	3.08	34.590	4.35	2.13	53.9		31.6	52.4	2000	3.47	34.947	5.73	27.820	29.1	2.089				
1563A	3.49	34.812	4.88	1.76	38.6		29.0	39.4	2250	3.29	34.954	5.84	27.843	26.6	2.201				
1768A	3.52	34.903	5.35	1.50	30.3		22.6	32.8	2500	3.10	34.943	5.83	27.852	26.0	2.312				
1922A	3.51	34.938	5.69	1.40	24.7		21.1	30.1	2750	2.88	34.932	5.75	27.864	24.8	2.421				
2128A	3.38	34.953	5.79	1.31	24.1		20.0	27.8	3000	2.63	34.915	5.82	27.873	23.9	2.528				
2333A	3.22	34.952	5.86	1.31	25.6		20.1	26.4											
2541A	3.067	34.940	5.82	1.30	28.7		20.5	25.9											
2750A	2.875	34.932	5.75	1.34	31.8		20.5	24.8											
2958A	2.660	34.921	5.81	1.38	36.5		21.0	23.8											
3015A	2.612	34.914	5.82	1.36	37.3		20.9	24.0											
3070A	2.571	34.91	5.81	1.38	36.5		21.1	23.9											



5 STD

CATO EXPEDITION VI

6 STD

LATITUDE 25 01.0S	LONGITUDE 40 23.1W	MO/DAY/YR 11/09/72	START TIME 1155 GMT			LATITUDE 25 16.5S	LONGITUDE 40 01.5W	MO/DAY/YR 11/09/72	START TIME 1957 GMT		
Z	T	S	SIGMA T	DT	DL	Z	T	S	SIGMA T	DT	DL
0	22.78	36.71	25.312	266.9	0.000	0	22.88	36.65	25.237	274.0	0.000
10	22.78	36.71	25.312	266.9	0.027	10	22.87	36.66	25.246	273.0	0.027
20	22.78	36.71	25.312	266.9	0.053	20	22.85	36.67	25.261	271.7	0.055
30	22.78	36.71	25.312	266.9	0.080	30	22.51	36.67	25.359	262.4	0.061
40	22.78	36.75	25.342	264.0	0.107	40	21.72	36.63	25.552	244.0	0.107
50	22.72	36.92	25.488	250.1	0.133	50	21.29	36.57	25.626	237.0	0.131
60	22.42	36.87	25.536	245.5	0.158	60	21.26	36.61	25.659	233.9	0.155
70	22.12	36.85	25.591	240.3	0.182	70	21.17	36.58	25.667	233.1	0.179
80	21.89	36.75	25.595	239.9	0.207	80	21.16	36.58	25.670	232.9	0.202
90	21.83	36.75	25.612	238.3	0.231	90	21.16	36.58	25.670	232.9	0.226
100	21.74	36.74	25.630	236.6	0.255	100	21.18	36.60	25.679	232.0	0.249
125	21.28	36.66	25.697	230.3	0.314	125	21.05	36.61	25.723	227.8	0.308
150	20.80	36.53	25.730	227.1	0.373	150	20.93	36.60	25.748	225.4	0.366
200	18.03	35.99	26.039	197.8	0.482	200	17.82	35.96	26.068	195.0	0.474
250	16.31	35.73	26.254	177.4	0.580	250	16.51	35.77	26.238	178.9	0.571
300	14.89	35.47	26.376	165.9	0.670	300	15.06	35.57	26.415	162.1	0.661
350	13.91	35.35	26.494	154.7	0.755	350	14.40	35.46	26.475	156.5	0.745
400	13.19	35.27	26.581	146.4	0.835	400	13.22	35.29	26.591	145.5	0.826
450	12.23	35.12	26.656	139.3	0.912	450	12.16	35.11	26.662	138.7	0.903
500	11.08	34.98	26.764	129.0	0.985	500	11.14	34.97	26.746	130.8	0.976
550	9.81	34.81	26.856	120.4	1.054	550	9.99	34.83	26.840	121.8	1.045
600	8.50	34.66	26.951	111.3	1.117	600	8.76	34.68	26.926	113.7	1.110
650	7.29	34.51	27.014	105.4	1.177	650	7.40	34.51	26.998	106.9	1.171
700	6.15	34.41	27.089	98.3	1.233	700	6.33	34.45	27.097	97.5	1.227
750A	5.20	34.31	27.128	94.6	1.286	750A	5.68	34.39	27.133	94.1	1.280
800A	4.55	34.30	27.194	88.4	1.335	800A	4.93	34.33	27.175	90.2	1.330
850A	4.20	34.33	27.255	82.5	1.382	850A	4.45	34.34	27.236	84.3	1.378
900A	3.98	34.33	27.278	80.4	1.427	900A	4.13	34.33	27.262	81.8	1.424
950A	3.76	34.36	27.322	76.2	1.470	950A	3.89	34.34	27.295	78.7	1.468
1000A	3.54	34.38	27.362	72.4	1.511	1000A	3.65	34.36	27.335	74.9	1.511
1100A	3.31	34.45	27.440	65.0	1.588	1100A	3.30	34.44	27.433	65.7	1.589
1200A	3.26	34.54	27.516	57.8	1.658	1200A	3.13	34.50	27.497	59.7	1.660
1300A	3.43	34.64	27.579	51.8	1.722	1300A	3.06	34.59	27.575	52.3	1.725
1400A	3.63	34.73	27.631	46.9	1.783	1400A	3.08	34.66	27.629	47.1	1.784
1500A	3.84	34.82	27.681	42.1	1.840	1500A	3.41	34.78	27.693	41.1	1.839
1600A	3.90	34.89	27.731	37.4	1.894	1600A	3.48	34.82	27.718	38.7	1.892
1700A	3.89	34.92	27.756	35.1	1.945	1700A	3.47	34.85	27.742	36.3	1.943
1800A	3.83	34.94	27.778	33.0	1.995	1800A	3.50	34.90	27.779	32.9	1.992
1900A	3.72	34.96	27.805	30.4	2.044	1900A	3.53	34.93	27.800	30.9	2.039
2000A	3.59	34.96	27.818	29.2	2.090	2000A	3.51	34.95	27.818	29.2	2.085
2100A	3.46	34.95	27.823	28.7	2.137	2100A	3.41	34.95	27.826	28.3	2.131
2200A	3.34	34.95	27.835	27.6	2.182	2200A	3.32	34.95	27.837	27.4	2.176
2300A	3.20	34.95	27.848	26.3	2.226	2300A	3.25	34.95	27.843	26.8	2.221
2400A	3.12	34.94	27.848	26.4	2.270	2400A	3.16	34.94	27.844	26.7	2.265
2500A	3.00	34.94	27.859	25.3	2.314	2500A	3.12	34.94	27.848	26.4	2.310
2600A	2.90	34.93	27.860	25.2	2.357	2600A	3.03	34.94	27.856	25.6	2.354
2700A	2.81	34.93	27.868	24.4	2.399	2700A	2.93	34.93	27.857	25.5	2.398
2800A	2.72	34.92	27.868	24.4	2.442	2800A	2.83	34.92	27.858	25.4	2.442
2900A	2.62	34.91	27.869	24.3	2.484	2900A	2.76	34.93	27.873	24.0	2.485
3000A	2.47	34.90	27.874	23.9	2.525	3000A	2.62	34.91	27.869	24.3	2.528
3083A	2.42	34.89	27.871	24.2	2.559	3090A	2.55	34.90	27.867	24.5	2.566

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
23 47.3S		39 23.7W		11/10/72		1517 2030		GMT	3911M	110	22KT	1	150 10						
Z	T	S	U2	P04	SI03	NO2	NO3	DT	Z	T	S	U2	SI04	DT	DD				
0	23.05	36.888	4.96	0.00	1.2	0.00	0.1	261.5	0	23.05	36.888	4.96	25.368	261.5	0.000				
10	23.06	36.886	5.01	0.00	1.0	0.00	0.1	261.9	10	23.06	36.886	5.01	25.364	261.9	0.026				
26	23.09	36.888	5.04	0.00	1.0	0.00	0.0	262.6	20	23.08	36.885	5.03	25.360	262.3	0.052				
42	22.43	36.797	5.06	0.02	1.2	0.00	0.0	251.1	30	22.94	36.863	5.05	25.383	260.1	0.079				
78	22.15	36.859	4.99	0.05	1.0	0.00	0.1	239.0	50	22.37	36.823	5.05	25.317	247.3	0.130				
115	21.35	36.664	4.98	0.06	1.0	0.11	0.1	231.8	75	22.17	36.858	5.00	25.399	239.6	0.191				
146	20.85	36.549	4.94	0.10	1.2	0.12	0.3	226.5	100	21.69	36.752	4.98	25.454	234.4	0.251				
177	18.75	36.121	4.77	0.29	1.5	0.02	1.6	205.0	125	21.26	36.641	4.98	25.690	231.0	0.311				
234	16.34	35.721	4.93	0.38	1.8		3.2	178.7	150	20.59	36.495	4.92	25.762	224.1	0.369				
353	14.27	35.437	4.92	0.56	2.8		7.1	155.5	200	17.60	35.918	4.80	26.092	192.7	0.476				
568	9.46	34.777	4.63	1.35	9.2		19.2	117.3	250	15.96	35.666	4.93	26.487	174.3	0.572				
720	6.20	34.430	4.95	1.74	16.8		26.2	97.4	300	14.97	35.531	4.92	26.405	163.1	0.660				
847	4.61	34.327	5.05	2.00	25.0	0.00	29.6	87.0	400	13.27	35.289	4.83	26.580	146.5	0.825				
975	3.79	34.354	4.72	2.14	37.0		32.2	76.7	500	11.04	34.979	4.69	26.770	128.5	0.974				
1102	3.32	34.434	4.46	2.24	48.6		33.4	66.1	600	8.71	34.686	4.69	26.739	112.5	1.106				
1230	3.03	34.503	4.39	2.20	54.4		32.9	58.6	700	6.58	34.465	4.90	27.075	99.6	1.223				
1396A	2.95	34.618	4.43	2.15	57.9	0.00	31.6	49.2	800	5.09	34.350	5.01	27.171	90.5	1.327				
1436	3.04	34.672	4.50	2.00	54.0		30.2	45.9	1000	3.68	34.369	4.66	27.339	74.6	1.510				
1572A	3.12	34.763	4.78	1.99	49.1		28.0	39.7	1200	3.08	34.487	4.41	27.490	60.2	1.641				
1646	3.250	34.805	5.00	1.76	43.2	0.00	26.8	37.6	1500	3.09	34.726	4.62	27.680	42.3	1.864				
1649A	3.19	34.792	4.94	1.83	46.0		27.0		1750	3.16	34.834	5.31	27.760	34.6	1.970				
1800A	3.14	34.851	5.43	1.80	41.2		24.8	33.3	2000	3.33	34.928	5.62	27.819	29.1	2.086				
1951A	3.32	34.918	5.55	1.33	29.9		22.2	29.8	2250	3.21	34.944	5.81	27.843	26.8	2.197				
2104A	3.35	34.947	5.75	1.29	25.2	0.00	20.7	27.9	2500	3.05	34.938	5.86	27.853	25.9	2.306				
2257A	3.20	34.945	5.81	1.30	26.8		20.6	26.7	2750	2.90	34.931	5.81	27.861	25.2	2.416				
2411A	3.10	34.938	5.80	1.36	29.2		20.7	26.4	3000	2.76	34.924	5.81	27.868	24.5	2.525				
2419R	3.10	34.939	5.88	1.38	28.8		20.7	26.3	3250	2.59	34.911	5.86	27.874	23.9	2.633				
2618A	2.97	34.936	5.83	1.32	30.3		20.7	25.4	3500	2.13	34.865	5.67	27.875	23.7	2.738				
2623R	2.97	34.936	5.50	1.35	30.4	0.00	20.7	25.4	3750	1.18	34.766	5.30	27.867	24.5	2.831				
2824R	2.85	34.928	5.80	1.39	33.1		21.0	24.9	4000	0.66	34.716	5.16	27.860	25.2	2.911				
3027R	2.75	34.924	5.81	1.35	34.7		20.9	24.4											
3231R	2.60	34.913	5.87	1.38	37.6		21.2	23.9											
3438R	2.34	34.889	5.78	1.45	47.3		22.2	23.7											
3644R	1.58	34.808	5.39	1.75	79.2	0.00	26.4	24.1											
3853R	0.87	34.735	5.24	2.05	109.7		30.4	25.0											
3933R	0.756	34.720	5.16	2.10	114.2		31.3	25.5											
3959R	0.710	34.717	5.16	2.11	118.8	0.00	31.2	25.4											

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
26 11.0S		38 45.8W		11/11/72		0353 0650		GMT	4058M	050	18KT	1	080 5 6						
Z	T	S	Q2	P04	SI03	NO2	NO3	DT	Z	T	S	Q2	SI04	DT	DD				
0	22.78	36.835	4.98	0.00	1.0	0.00	0.0	257.9	0	22.78	36.835	4.98	25.406	257.9	0.000				
10	22.79	36.833	4.97	0.00	0.7	0.00	0.0	258.3	10	22.79	36.833	4.97	25.402	258.3	0.026				
26	22.77	36.830	5.01	0.00	1.0	0.00	0.0	258.0	20	22.78	36.829	4.99	25.404	258.1	0.052				
42	22.50	36.787	5.02	0.00	1.0	0.00	0.0	253.7	30	22.73	36.820	5.01	25.413	257.3	0.078				
78	21.04	36.609	5.13	0.02	1.0	0.00	0.0	227.7	50	22.20	36.748	5.05	25.508	248.2	0.128				
115	20.21	36.449	5.08	0.06	0.8	0.08	0.0	217.9	75	21.17	36.623	5.12	25.700	229.9	0.189				
146	18.43	36.087	4.95	0.20	1.3	0.03	1.2	200.2	100	20.59	36.530	5.10	25.789	221.5	0.246				
177	16.96	35.827	4.73	0.41	2.0	0.01	3.6	184.9	125	19.67	36.334	5.05	25.884	212.5	0.301				
235	15.38	35.581	4.84	0.47	2.1	0.01	5.2	168.1	150	18.22	36.046	4.92	26.036	198.1	0.354				
353	13.66	35.358	4.90	0.69	3.2	0.01	8.8	149.1	200	16.21	35.705	4.77	26.258	177.0	0.451				
568	8.75	34.688	4.72	1.45	10.4	0.00	20.5	113.0	250	15.12	35.547	4.85	26.384	165.1	0.540				
722	5.49	34.365	5.11	1.85	18.2	0.00	26.9	93.8	300	14.35	35.447	4.87	26.476	156.4	0.624				
851	4.30	34.328	4.96	2.09	28.5	0.00	30.4	83.7	400	12.67	35.209	4.84	26.640	140.8	0.782				
978	3.70	34.385	4.54	2.20	40.3	0.00	32.6	73.5	500	10.40	34.893	4.75	26.818	123.9	0.926				
1066A	3.31	34.423	4.47	2.25	48.1	0.00	33.1	67.1	600	7.98	34.599	4.81	26.982	108.4	1.053				
1107	3.22	34.439	4.48	2.24	50.0	0.00	33.3	65.1	700	5.89	34.397	5.06	27.112	96.1	1.165				
1219A	3.30	34.560	4.39	2.20	49.8		31.7	56.6	800	4.65	34.328	5.02	27.204	87.4	1.265				
1236	3.33	34.573	4.38	2.15	48.4	0.00	31.6	55.9	1000	3.59	34.397	4.52	27.370	71.8	1.441				
1372A	3.26	34.652	4.44	2.05	50.5		30.5	49.4	1200	3.29	34.541	4.41	27.514	58.0	1.587				
1576A	3.61	34.838	4.93	1.78	35.1		25.4	38.6	1500	3.46	34.770	4.72	27.679	42.4	1.770				
1780A	3.69	34.927	5.38	1.40	26.0		22.5	32.6	1750	3.68	34.916	5.32	27.775	33.3	1.899				
1983A	3.52	34.948	5.71	1.32	24.1	0.00	21.0	29.4	2000	3.51	34.949	5.72	27.817	29.3	2.017				
2108A	3.37	34.958	5.80	1.37	24.5		20.5	27.3	2250	3.18	34.945	5.80	27.846	26.6	2.129				
2188A	3.20	34.946	5.79	1.33	26.5		20.5	26.6	2500	3.10	34.939	5.84	27.849	26.3	2.239				
2596A	3.07	34.937	5.86	1.38	29.0		20.5	26.2	2750	2.97	34.936	5.84	27.858	25.4	2.350				
2800A	2.94	34.935	5.83	1.35	31.2		20.8	25.2	3000	2.82	34.926	5.82	27.865	24.8	2.461				
3005A	2.82	34.927	5.82	1.42	33.7	0.00	21.0	24.7	3250	2.60	34.911	5.82	27.872	24.1	2.571				
3211A	2.63	34.913	5.82	1.38	36.9		21.0	24.2	3500	2.08	34.862	5.70	27.877	23.7	2.675				
3417A	2.37	34.893	5.80	1.46	45.8		22.0	23.6	3750	1.21	34.770	5.26	27.868	24.5	2.768				
3626A	1.595	34.814	5.49	1.75	78.4		26.3	23.7	4000	0.66	34.715	5.14	27.859	25.3	2.848				
3835A	0.99	34.745	5.16	1.97	103.1		29.5	25.0											
3913A	0.817	34.732	5.18	2.07	112.0	0.00	30.4	24.9											
3992A	0.685	34.717	5.15	2.13	117.2		31.1	25.3											
4045A	0.510	34.701	5.10	2.19	124.7	0.00	32.2	25.5											

7 STD						CATO EXPEDITION VI						8 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
25 47.3S	39 23.7E	11/10/72	0936 GMT			26 11.0S	38 45.8W	11/11/72	0217 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	23.08	36.89	25.361	262.2	0.000	0	22.80	36.82	25.389	259.5	0.000	0	22.80	36.82	25.389	259.5	0.000
10	23.08	36.89	25.361	262.2	0.026	10	22.76	36.84	25.410	257.5	0.026	10	22.76	36.84	25.410	257.5	0.026
20	23.09	36.80	25.351	263.2	0.053	20	22.79	36.85	25.415	257.1	0.052	20	22.79	36.85	25.415	257.1	0.052
30	23.08	36.88	25.354	262.9	0.079	30	22.79	36.85	25.415	257.1	0.077	30	22.79	36.85	25.415	257.1	0.077
40	22.62	36.76	25.396	258.9	0.105	40	22.71	36.82	25.415	257.1	0.103	40	22.71	36.82	25.415	257.1	0.103
50	22.22	36.78	25.525	246.6	0.131	50	22.44	36.77	25.455	253.3	0.129	50	22.44	36.77	25.455	253.3	0.129
60	22.27	36.86	25.572	242.2	0.155	60	22.04	36.74	25.546	244.7	0.154	60	22.04	36.74	25.546	244.7	0.154
70	22.22	36.86	25.566	240.8	0.180	70	21.50	36.67	25.644	235.3	0.178	70	21.50	36.67	25.644	235.3	0.178
80	22.15	36.85	25.598	239.7	0.204	80	21.03	36.60	25.720	228.0	0.202	80	21.03	36.60	25.720	228.0	0.202
90	22.04	36.82	25.606	238.9	0.228	90	20.92	36.56	25.720	228.1	0.225	90	20.92	36.56	25.720	228.1	0.225
100	21.82	36.77	25.630	236.6	0.252	100	20.78	36.53	25.735	226.6	0.248	100	20.78	36.53	25.735	226.6	0.248
125	21.40	36.72	25.710	229.1	0.312	125	19.72	36.30	25.844	216.3	0.304	125	19.72	36.30	25.844	216.3	0.304
150	20.70	36.50	25.734	226.7	0.370	150	18.45	36.08	26.003	201.2	0.358	150	18.45	36.08	26.003	201.2	0.358
200	17.78	35.95	26.071	194.6	0.479	200	16.45	35.60	26.185	184.1	0.457	200	16.45	35.60	26.185	184.1	0.457
250	16.00	35.64	26.257	177.2	0.575	250	15.27	35.57	26.368	166.6	0.548	250	15.27	35.57	26.368	166.6	0.548
300	14.91	35.53	26.418	161.9	0.664	300	14.32	35.43	26.469	157.1	0.633	300	14.32	35.43	26.469	157.1	0.633
350	14.25	35.43	26.484	155.6	0.748	350	13.75	35.37	26.534	150.8	0.715	350	13.75	35.37	26.534	150.8	0.715
400	13.22	35.25	26.560	148.4	0.830	400	12.65	35.16	26.617	143.0	0.794	400	12.65	35.16	26.617	143.0	0.794
450	12.30	35.12	26.643	140.6	0.908	450	11.61	35.04	26.713	135.9	0.868	450	11.61	35.04	26.713	135.9	0.868
500	11.20	34.99	26.750	130.4	0.981	500	10.59	34.90	26.790	126.6	0.939	500	10.59	34.90	26.790	126.6	0.939
550	9.79	34.81	26.859	120.1	1.050	550	9.24	34.71	26.872	118.8	1.006	550	9.24	34.71	26.872	118.8	1.006
600	8.58	34.65	26.931	113.2	1.114	600	7.43	34.58	26.975	109.0	1.068	600	7.43	34.58	26.975	109.0	1.068
650	7.35	34.50	26.991	107.5	1.174	650	6.72	34.45	27.045	102.4	1.126	650	6.72	34.45	27.045	102.4	1.126
700	6.56	34.45	27.067	100.4	1.232	700	5.99	34.37	27.128	94.6	1.180	700	5.99	34.37	27.128	94.6	1.180
750	5.80	34.38	27.110	96.3	1.286	750	5.07	34.33	27.158	81.7	1.251	750	5.07	34.33	27.158	81.7	1.251
800	5.13	34.37	27.183	89.4	1.337	800	4.62	34.30	27.166	69.1	1.260	800	4.62	34.30	27.166	69.1	1.260
850	4.63	34.33	27.209	87.0	1.386	850	4.30	34.33	27.244	63.6	1.328	850	4.30	34.33	27.244	63.6	1.328
900	4.22	34.32	27.245	83.5	1.432	900	4.08	34.35	27.284	59.8	1.373	900	4.08	34.35	27.284	59.8	1.373
950	3.87	34.33	27.289	79.3	1.477	950	3.89	34.37	27.319	76.5	1.416	950	3.89	34.37	27.319	76.5	1.416
1000	3.67	34.36	27.333	75.1	1.520	1000	3.63	34.39	27.361	72.5	1.457	1000	3.63	34.39	27.361	72.5	1.457
1100	3.28	34.43	27.427	66.3	1.599	1100	3.28	34.45	27.443	64.6	1.534	1100	3.28	34.45	27.443	64.6	1.534
1200	3.08	34.48	27.485	60.7	1.670	1200	3.15	34.52	27.510	58.3	1.604	1200	3.15	34.52	27.510	58.3	1.604
1300	2.91	34.56	27.564	53.2	1.736	1300A	3.31	34.62	27.575	52.2	1.668	1300A	3.31	34.62	27.575	52.2	1.668
1400	2.94	34.63	27.617	46.2	1.796	1400A	3.48	34.72	27.638	46.2	1.728	1400A	3.48	34.72	27.638	46.2	1.728
1500	3.08	34.72	27.676	42.6	1.851	1500A	3.57	34.79	27.685	41.6	1.784	1500A	3.57	34.79	27.685	41.6	1.784
1600	3.13	34.77	27.711	39.3	1.903	1600A	3.63	34.85	27.727	37.8	1.837	1600A	3.63	34.85	27.727	37.8	1.837
1700A	3.10	34.80	27.738	36.8	1.953	1700A	3.71	34.90	27.758	34.9	1.888	1700A	3.71	34.90	27.758	34.9	1.888
1800A	3.24	34.88	27.789	32.0	2.001	1800A	3.69	34.93	27.784	32.4	1.937	1800A	3.69	34.93	27.784	32.4	1.937
1900A	3.11	34.86	27.785	32.3	2.047	1900A	3.69	34.95	27.810	29.9	1.984	1900A	3.69	34.95	27.810	29.9	1.984
2000A	3.41	34.94	27.820	29.0	2.093	2000A	3.51	34.95	27.816	29.2	2.030	2000A	3.51	34.95	27.816	29.2	2.030
2100A	3.34	34.94	27.827	28.4	2.138	2100A	3.45	34.96	27.832	27.9	2.075	2100A	3.45	34.96	27.832	27.9	2.075
2200A	3.27	34.94	27.833	27.7	2.183	2200A	3.37	34.96	27.840	27.1	2.120	2200A	3.37	34.96	27.840	27.1	2.120
2300A	3.17	34.94	27.843	26.8	2.227	2300A	3.30	34.95	27.838	27.3	2.165	2300A	3.30	34.95	27.838	27.3	2.165
2400A	3.12	34.93	27.840	27.1	2.271	2400A	3.21	34.95	27.847	26.4	2.210	2400A	3.21	34.95	27.847	26.4	2.210
2500A	3.04	34.93	27.847	26.4	2.316	2500A	3.13	34.94	27.847	26.5	2.255	2500A	3.13	34.94	27.847	26.5	2.255
2600A	2.99	34.94	27.860	25.2	2.360	2600A	3.06	34.94	27.853	25.8	2.299	2600A	3.06	34.94	27.853	25.8	2.299
2700A	2.91	34.93	27.859	25.3	2.403	2700A	2.98	34.93	27.853	25.9	2.344	2700A	2.98	34.93	27.853	25.9	2.344
2800A	2.87	34.93	27.863	25.0	2.447	2800A	2.94	34.93	27.856	25.5	2.389	2800A	2.94	34.93	27.856	25.5	2.389
2900A	2.81	34.93	27.868	24.4	2.491	2900A	2.87	34.93	27.863	25.0	2.433	2900A	2.87	34.93	27.863	25.0	2.433
3000A	2.74	34.93	27.875	23.6	2.534	3000A	2.82	34.92	27.859	25.3	2.478	3000A	2.82	34.92	27.859	25.3	2.478
3100A	2.68	34.93	27.880	23.3	2.577	3100A	2.73	34.92	27.868	24.5	2.522	3100A	2.73	34.92	27.868	24.5	2.522
3200A	2.62	34.92	27.877	23.6	2.619	3200A	2.63	34.91	27.868	24.4	2.566	3200A	2.63	34.91	27.868	24.4	2.566
3300A	2.53	34.91	27.877	23.6	2.662	3300A	2.54	34.90	27.868	24.4	2.610	3300A	2.54	34.90	27.868	24.4	2.610
3400A	2.41	34.90	27.879	23.4	2.705	3400A	2.38	34.89	27.874	23.9	2.653	3400A	2.38	34.89	27.874	23.9	2.653
3500A	2.28	34.90	27.890	22.3	2.746	3500A	2.19	34.87	27.874	23.9	2.695	3500A	2.19	34.87	27.874	23.9	2.695
3600A	1.94	34.85	27.878	23.5	2.786	3600A	1.72	34.83	27.879	23.4	2.734	3600A	1.72	34.83	27.879	23.4	2.734
3700A	1.46	34.80	27.874	23.9	2.823	3700A	1.41	34.80	27.876	23.5	2.770	3700A	1.41	34.80	27.876	23.5	2.770
3800A	0.96	34.75	27.867	24.5	2.857	3800A	1.10	34.77	27.875	23.8	2.804	3800A	1.10	34.77	27.875	23.8	2.804
3900A	0.77	34.72	27.857	25.5	2.889	3900A	0.83	34.73	27.861	25.1	2.836	3900A	0.83	34.73	27.861	25.1	2.836
3980A	0.67	34.71	27.855	25.7	2.916	4000A	0.64	34.70	27.849	26.3	2.867	4000A	0.64	34.70	27.849	26.3	2.867
						4079A	0.45	34.68	27.844	26.8	2.891	4079A	0.45	34.68	27.844	26.8	2.891



RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 26 45.7S		LONGITUDE 37 59.0W		MO/DAY/YR 11/11/72		MESSENGER 1540 1847		TIME GMT	BOTTOM 4295M	WIND 080	SPEED 14KT	WEATHER 2	DOMINANT WAVES 049 8						
Z	T	S	02	P04	S103	N02	N03	0T	Z	T	S	02	S10T	0T	00				
0	21.77	36.518	5.16	0.00	0.8	0.01	0.0	253.5	0	21.77	36.518	5.16	25.453	253.5	0.000				
10	21.77	36.514	5.11	0.00	0.8	0.00	0.0	253.7	10	21.77	36.514	5.11	25.450	253.7	0.025				
26	21.76	36.508	5.15	0.00	1.0	0.00	0.0	253.9	20	21.76	36.508	5.14	25.449	253.9	0.051				
42	21.38	36.533	5.22	0.00	1.0	0.00	0.0	242.1	30	21.68	36.512	5.17	25.475	251.4	0.076				
80	20.53	36.484	5.22	0.02	1.0	0.00	0.0	223.5	50	21.29	36.551	5.22	25.614	238.1	0.125				
116	17.76	35.956	4.89	0.22	1.5	0.05	1.9	193.9	75	20.70	36.509	5.22	25.743	225.9	0.184				
148	16.85	35.816	4.89	0.28	1.6	0.02	3.0	183.2	100	18.99	36.185	5.03	25.746	206.6	0.239				
179	15.91	35.663	4.97	0.46	2.1	0.01	4.3	173.5	125	17.43	35.903	4.89	26.120	190.1	0.290				
236	14.97	35.542	4.99	0.47	2.3	0.01	5.3	162.3	150	16.79	35.604	4.89	26.200	182.5	0.337				
354	13.68	35.386	4.97	0.64	3.0	0.01	6.4	147.4	200	15.49	35.604	4.98	26.346	168.7	0.428				
569	8.90	34.699	4.97	1.41	9.7	0.00	20.3	114.4	250	14.82	35.525	4.99	26.435	160.3	0.514				
721	5.36	34.362	5.22	1.81	17.2	0.00	26.6	94.8	300	14.27	35.463	4.98	26.504	153.7	0.596				
849	4.22	34.300	5.30	2.02	26.4	0.00	29.7	81.0	400	12.79	35.246	4.97	26.645	140.4	0.753				
891P	3.86	34.300	5.20	1.98	29.9	0.00	30.4	81.0	500	10.60	34.923	4.97	26.807	125.1	0.897				
997P	3.44	34.360	4.78	2.16	41.6	0.00	31.8	73.0	600	8.14	34.609	5.02	26.966	109.9	1.025				
1106P	3.17	34.427	4.57	2.22	48.1	0.00	32.8	65.5	700	5.96	34.395	5.18	27.101	97.2	1.139				
1194P	3.05	34.488	4.40	2.21	53.3	0.00	32.8	59.9	800	4.63	34.311	5.27	27.192	86.5	1.240				
1347A	3.03	34.591	4.37	2.16	55.1	0.00	31.8	51.9	1000	3.43	34.362	4.77	27.357	72.8	1.417				
1499A	2.94	34.685	4.55	2.03	55.5		29.7	44.0	1200	3.05	34.493	4.40	27.498	59.5	1.566				
1653A	2.86	34.741	4.70	1.92	55.2		28.5	39.1	1500	2.94	34.686	4.55	27.662	44.0	1.749				
1856A	3.18	34.877	5.31	1.62	36.8		24.0	31.7	1750	2.99	34.805	4.97	27.753	35.4	1.876				
2059A	3.38	34.954	5.79	1.32	24.1		20.5	27.7	2000	3.35	34.940	5.69	27.825	28.5	1.991				
2262A	3.11	34.935	5.71	1.35	29.0	0.00	21.0	26.7	2250	3.13	34.938	5.71	27.845	26.7	2.101				
2466A	3.01	34.925	5.73	1.35	30.7		21.0	26.8	2500	2.99	34.925	5.75	27.846	26.3	2.210				
2670A	2.91	34.930	5.84	1.35	31.5		20.7	25.3	2750	2.86	34.928	5.85	27.862	24.9	2.319				
2874A	2.79	34.926	5.87	1.39	33.6		21.0	24.6	3000	2.72	34.921	5.85	27.870	24.3	2.427				
3079A	2.67	34.918	5.83	1.38	35.8		21.1	24.2	3250	2.52	34.911	5.82	27.880	23.3	2.534				
3286A	2.48	34.91	5.82	1.49	42.1	0.00	21.1	23.2	3500	2.09	34.866	5.67	27.879	23.4	2.637				
3492A	2.11	34.869	5.68	1.56	55.6		23.5	23.4	3750	1.44	34.797	5.44	27.874	23.9	2.731				
3700A	1.56	34.808	5.50	1.79	79.7		26.5	24.0	4000	0.78	34.735	5.13	27.867	24.6	2.814				
3909A	1.05	34.765	5.25	1.98	99.2		29.6	23.8	4250	0.34	34.690	5.13	27.858	25.4	2.886				
4119A	0.50	34.701	5.07	2.17	123.9		32.5	25.4											
4198A	0.422	34.695	5.14	2.21	124.4	0.00	31.9	25.5											
4277A	0.302	34.687	5.12	2.25	128.6		32.6	25.4											
4330A	0.290	34.683	5.13	2.26	129.2	0.00	32.9	25.7											

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 27 41.3S		LONGITUDE 36 42.2W		MO/DAY/YR 11/12/72		MESSENGER 065R 1012		TIME GMT	BOTTOM 4677M	WIND 090	SPEED 17KT	WEATHER 2	DOMINANT WAVES 090 6 8						
Z	T	S	02	P04	S103	N02	N03	0T	Z	T	S	02	S10T	0T	00				
0	21.43	36.536	5.14	0.02	1.0	0.00	0.0	243.2	0	21.43	36.536	5.14	25.562	243.2	0.000				
10	21.44	36.531	5.17	0.00	0.8	0.00	0.0	243.8	10	21.44	36.531	5.17	25.555	243.8	0.024				
26	21.44	36.531	5.17	0.00	0.8	0.00	0.0	243.8	20	21.44	36.529	5.17	25.555	243.8	0.049				
41	21.43	36.535	5.18	0.01	1.0	0.00	0.0	243.2	30	21.44	36.530	5.17	25.557	243.6	0.073				
78	20.47	36.419	5.25	0.04	0.8	0.00	0.0	226.7	50	21.32	36.530	5.19	25.590	240.5	0.122				
114	18.29	35.977	5.32	0.14	1.0	0.01	0.1	204.9	75	20.60	36.436	5.24	25.715	228.5	0.181				
155	17.28	35.848	5.23	0.25	1.4	0.10	0.7	190.7	100	19.14	36.144	5.30	25.877	213.2	0.237				
186	16.32	35.721	4.93	0.41	1.7		3.2	178.3	125	17.96	35.926	5.30	26.009	200.6	0.290				
258	14.93	35.543	5.00	0.48	2.0	0.01	5.4	161.4	150	17.37	35.854	5.24	26.099	192.2	0.340				
361	13.70	35.395	4.99	0.63	3.0	0.01	8.1	147.2	200	15.99	35.677	4.94	26.289	174.1	0.435				
566	9.27	34.743	4.75	1.36	8.9	0.00	19.1	116.6	250	15.04	35.557	4.99	26.409	162.7	0.522				
720	5.88	34.389	5.16	1.77	15.8	0.00	25.8	96.6	300	14.41	35.485	5.00	26.491	154.9	0.606				
873	4.18	34.288	5.32	2.03	24.5	0.00	29.5	85.5	400	12.96	35.278	4.92	26.634	141.4	0.764				
1027	3.44	34.350	4.82	2.20	38.7	0.00	32.2	73.8	500	10.85	34.958	4.79	26.790	126.5	0.909				
1181	3.06	34.444	4.51	2.25	50.0	0.00	33.2	63.3	600	8.45	34.644	4.83	26.946	111.9	1.039				
1336	2.93	34.551	4.39	2.12	55.1	0.00	54.1	54.1	700	6.27	34.423	5.10	27.083	98.9	1.155				
1492	2.84	34.651	4.47	2.08	56.2	0.00	45.8	45.8	800	4.83	34.315	5.24	27.174	90.3	1.259				
1573A	2.82	34.681	4.56	2.06	56.6	0.01	30.4	43.3	1000	3.52	34.333	4.92	27.326	75.8	1.441				
1648	2.789	34.716	4.69	1.97	55.8	0.00		40.4	1200	3.04	34.457	4.48	27.471	62.1	1.595				
1778A	2.79	34.777	4.87	1.87	51.3		27.4	35.8	1500	2.84	34.656	4.48	27.647	45.5	1.783				
1983A	2.83	34.828	5.19	1.72	47.0		25.4	32.3	1750	2.79	34.767	4.83	27.740	36.7	1.913				
2187A	2.89	34.878	5.48	1.61	38.6		23.2	29.0	2000	2.84	34.832	5.22	27.788	32.0	2.029				
2391A	2.92	34.910	5.65	1.38	33.3		21.5	26.9	2250	2.91	34.889	5.54	27.828	28.2	2.141				
2595A	2.87	34.916	5.75	1.40	33.8	0.00	21.2	26.0	2500	2.90	34.913	5.71	27.847	26.3	2.249				
2800A	2.79	34.921	5.81	1.38	33.8		21.0	24.9	2750	2.81	34.919	5.80	27.860	25.2	2.358				
3107A	2.63	34.914	5.82	1.42	36.2		21.1	24.1	3000	2.69	34.916	5.82	27.869	24.2	2.466				
3209A	2.57	34.905	5.85	1.44	38.6		21.3	24.3	3250	2.53	34.902	5.84	27.871	24.2	2.573				
3415A	2.33	34.887	5.80	1.47	45.1		22.4	23.7	3500	2.19	34.873	5.75	27.877	23.6	2.678				
3621A	1.97	34.853	5.66	1.65	59.9	0.00	24.2	23.5	3750	1.70	34.822	5.54	27.874	23.9	2.777				
3827A	1.55	34.805	5.47	1.78	78.4		26.7	24.1	4000	1.54	34.782	5.39	27.869	24.4	2.869				
4034A	1.31	34.779	5.38	1.93	88.2		27.9	24.5	4250	1.12	34.753	5.31	27.860	25.0	2.958				
4241A	1.143	34.758	5.32	1.97	97.1		29.1	25.0	4500	0.99	34.689	5.07	27.854	25.8	3.036				
4449A	0.57	34.698	5.04	2.17	118.4		32.0	26.1											
4555A	0.23	34.681	5.10	2.25	127.0	0.00	32.9	25.5											
4606A	0.186	34.675	5.17	2.26	130.1		32.9	25.7											
4659A	0.189	34.674	5.16	2.27	128.2	0.00	33.0	25.8											



9 STD						CATO EXPEDITION VI						10 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
26 45.75	37 59.04	11/11/72	1359 GMT			27 41.35	36 42.24	11/12/72	0520 GMT			27 41.35	36 42.24	11/12/72	0520 GMT		
Z	T	S	SIGMA T	DT	DU	Z	T	S	SIGMA T	DT	DU	Z	T	S	SIGMA T	DT	DU
0	21.81	36.52	25.443	254.4	0.000	0	21.43	36.52	25.549	244.3	0.000	0	21.43	36.52	25.549	244.3	0.000
10	21.78	36.51	25.444	254.3	0.025	10	21.44	36.52	25.547	244.6	0.024	10	21.44	36.52	25.547	244.6	0.024
20	21.74	36.52	25.449	253.9	0.051	20	21.43	36.52	25.549	244.3	0.049	20	21.43	36.52	25.549	244.3	0.049
30	21.77	36.51	25.447	254.0	0.076	30	21.44	36.52	25.547	244.6	0.074	30	21.44	36.52	25.547	244.6	0.074
40	21.36	36.54	25.584	241.0	0.101	40	21.44	36.53	25.554	243.9	0.096	40	21.44	36.53	25.554	243.9	0.096
50	20.84	36.52	25.712	228.9	0.125	50	21.45	36.53	25.551	244.1	0.123	50	21.45	36.53	25.551	244.1	0.123
60	20.80	36.51	25.715	228.6	0.148	60	21.41	36.59	25.608	238.7	0.147	60	21.41	36.59	25.608	238.7	0.147
70	20.74	36.54	25.743	225.9	0.171	70	21.36	36.60	25.630	236.7	0.171	70	21.36	36.60	25.630	236.7	0.171
80	20.67	36.50	25.743	225.9	0.194	80	21.13	36.50	25.617	237.9	0.195	80	21.13	36.50	25.617	237.9	0.195
90	19.94	36.32	25.801	220.4	0.217	90	19.80	36.19	25.739	226.3	0.219	90	19.80	36.19	25.739	226.3	0.219
100	18.86	36.06	25.884	212.6	0.239	100	19.72	36.22	25.783	222.1	0.241	100	19.72	36.22	25.783	222.1	0.241
125	17.60	35.87	26.054	196.4	0.291	125	18.01	35.94	26.006	200.9	0.295	125	18.01	35.94	26.006	200.9	0.295
150	16.75	35.78	26.189	183.6	0.339	150	17.45	35.87	26.090	193.0	0.346	150	17.45	35.87	26.090	193.0	0.346
200	15.62	35.64	26.344	168.9	0.430	200	16.18	35.70	26.261	176.7	0.441	200	16.18	35.70	26.261	176.7	0.441
250	14.84	35.54	26.441	159.7	0.516	250	15.09	35.57	26.409	162.8	0.529	250	15.09	35.57	26.409	162.8	0.529
300	14.40	35.50	26.505	153.6	0.598	300	14.44	35.50	26.497	154.4	0.613	300	14.44	35.50	26.497	154.4	0.613
350	13.75	35.39	26.559	148.5	0.678	350	13.76	35.40	26.564	148.0	0.693	350	13.76	35.40	26.564	148.0	0.693
400	12.83	35.24	26.631	141.7	0.756	400	13.20	35.30	26.603	144.4	0.771	400	13.20	35.30	26.603	144.4	0.771
450	11.67	35.08	26.732	132.0	0.850	450	11.92	35.10	26.700	135.1	0.847	450	11.92	35.10	26.700	135.1	0.847
500	10.65	34.92	26.795	126.1	0.900	500	10.74	34.93	26.787	126.9	0.916	500	10.74	34.93	26.787	126.9	0.916
550	9.35	34.69	26.839	122.0	0.966	550	9.58	34.78	26.871	118.9	0.985	550	9.58	34.78	26.871	118.9	0.985
600	8.08	34.59	26.961	110.4	1.031	600	8.26	34.62	26.954	111.1	1.048	600	8.26	34.62	26.954	111.1	1.048
650	6.85	34.48	27.051	101.8	1.090	650	7.21	34.47	26.993	107.3	1.108	650	7.21	34.47	26.993	107.3	1.108
700	5.91	34.38	27.096	97.6	1.144	700	6.28	34.41	27.072	99.6	1.165	700	6.28	34.41	27.072	99.6	1.165
750	5.20	34.31	27.128	94.6	1.197	750	5.49	34.35	27.125	94.9	1.218	750	5.49	34.35	27.125	94.9	1.218
800	4.63	34.30	27.185	89.2	1.247	800	4.90	34.32	27.170	90.6	1.269	800	4.90	34.32	27.170	90.6	1.269
850	4.18	34.29	27.226	85.4	1.295	850	4.27	34.28	27.208	87.0	1.318	850	4.27	34.28	27.208	87.0	1.318
900	3.84	34.31	27.276	80.5	1.340	900	4.06	34.30	27.246	83.4	1.364	900	4.06	34.30	27.246	83.4	1.364
950	3.72	34.33	27.304	77.9	1.384	950	3.87	34.31	27.273	80.8	1.410	950	3.87	34.31	27.273	80.8	1.410
1000	3.45	34.37	27.363	72.3	1.425	1000	3.52	34.33	27.324	76.0	1.453	1000	3.52	34.33	27.324	76.0	1.453
1100	3.17	34.43	27.437	65.3	1.501	1100	3.24	34.39	27.399	68.9	1.533	1100	3.24	34.39	27.399	68.9	1.533
1200	3.04	34.49	27.497	59.6	1.572	1200	3.05	34.46	27.472	62.0	1.607	1200	3.05	34.46	27.472	62.0	1.607
1300	2.92	34.57	27.572	52.5	1.636	1300	2.97	34.52	27.527	56.8	1.674	1300	2.97	34.52	27.527	56.8	1.674
1400A	2.94	34.62	27.606	49.3	1.696	1400	2.88	34.60	27.599	49.9	1.737	1400	2.88	34.60	27.599	49.9	1.737
1500A	3.03	34.69	27.657	44.5	1.753	1500	2.82	34.65	27.644	45.7	1.794	1500	2.82	34.65	27.644	45.7	1.794
1600A	2.87	34.71	27.688	41.6	1.807	1600	2.79	34.70	27.687	41.6	1.846	1600	2.79	34.70	27.687	41.6	1.846
1700A	2.98	34.78	27.733	37.2	1.858	1700A	2.81	34.74	27.717	38.8	1.898	1700A	2.81	34.74	27.717	38.8	1.898
1800A	3.10	34.83	27.762	34.5	1.906	1800A	2.79	34.78	27.751	35.6	1.947	1800A	2.79	34.78	27.751	35.6	1.947
1900A	3.26	34.89	27.795	31.4	1.953	1900A	2.81	34.81	27.773	33.5	1.994	1900A	2.81	34.81	27.773	33.5	1.994
2000A	3.23	34.93	27.829	28.1	1.998	2000A	2.82	34.83	27.788	32.1	2.039	2000A	2.82	34.83	27.788	32.1	2.039
2100A	3.24	34.92	27.820	29.0	2.042	2100A	2.87	34.86	27.807	30.2	2.084	2100A	2.87	34.86	27.807	30.2	2.084
2200A	3.14	34.93	27.838	27.3	2.086	2200A	2.89	34.88	27.821	28.9	2.128	2200A	2.89	34.88	27.821	28.9	2.128
2300A	3.11	34.93	27.841	27.0	2.130	2300A	2.91	34.90	27.835	27.5	2.172	2300A	2.91	34.90	27.835	27.5	2.172
2400A	3.06	34.93	27.845	26.6	2.174	2400A	2.91	34.91	27.843	26.8	2.215	2400A	2.91	34.91	27.843	26.8	2.215
2500A	2.96	34.93	27.855	25.7	2.218	2500A	2.90	34.91	27.844	26.7	2.259	2500A	2.90	34.91	27.844	26.7	2.259
2600A	2.93	34.93	27.857	25.5	2.261	2600A	2.84	34.92	27.858	25.4	2.302	2600A	2.84	34.92	27.858	25.4	2.302
2700A	2.88	34.92	27.854	25.6	2.304	2700A	2.81	34.92	27.860	25.2	2.345	2700A	2.81	34.92	27.860	25.2	2.345
2800A	2.81	34.92	27.860	25.2	2.348	2800A	2.77	34.92	27.864	24.8	2.388	2800A	2.77	34.92	27.864	24.8	2.388
2900A	2.75	34.92	27.866	24.7	2.392	2900A	2.74	34.93	27.875	23.8	2.430	2900A	2.74	34.93	27.875	23.8	2.430
3000A	2.70	34.92	27.870	24.3	2.435	3000A	2.67	34.92	27.873	24.0	2.473	3000A	2.67	34.92	27.873	24.0	2.473
3100A	2.63	34.92	27.876	23.7	2.477	3100A	2.63	34.91	27.868	24.4	2.516	3100A	2.63	34.91	27.868	24.4	2.516
3200A	2.58	34.92	27.881	23.3	2.520	3200A	2.57	34.91	27.874	23.9	2.559	3200A	2.57	34.91	27.874	23.9	2.559
3300A	2.47	34.91	27.882	23.1	2.562	3300A	2.48	34.90	27.873	23.9	2.602	3300A	2.48	34.90	27.873	23.9	2.602
3400A	2.33	34.90	27.886	22.7	2.603	3400A	2.36	34.89	27.876	23.7	2.644	3400A	2.36	34.89	27.876	23.7	2.644
3500A	2.15	34.88	27.885	22.8	2.644	3500A	2.22	34.88	27.879	23.4	2.686	3500A	2.22	34.88	27.879	23.4	2.686
3600A	1.83	34.84	27.879	23.5	2.683	3600A	2.03	34.86	27.879	23.4	2.726	3600A	2.03	34.86	27.879	23.4	2.726
3700A	1.58	34.81	27.873	23.9	2.720	3700A	1.80	34.84	27.881	23.2	2.765	3700A	1.80	34.84	27.881	23.2	2.765
3800A	1.32	34.79	27.876	23.7	2.756	3800A	1.62	34.82	27.879	23.5	2.803	3800A	1.62	34.82	27.879	23.5	2.803
3900A	1.11	34.77	27.875	23.8	2.790	3900A	1.45	34.79	27.867	24.6	2.839	3900A	1.45	34.79	27.867	24.6	2.839
4000A	0.75	34.73	27.866	24.7	2.821	4000A	1.33	34.77	27.859	25.3	2.876	4000A	1.33	34.77	27.859	25.3	2.876
4100A	0.48	34.70	27.854	25.4	2.850	4100A	1.24	34.77	27.866	24.7	2.912	4100A	1.24	34.77	27.866	24.7	2.912
4200A	0.42	34.70	27.862	25.1	2.878	4200A	1.17	34.76	27.863	25.0	2.947	4200A	1.17	34.76	27.863	25.0	2.947
4300A	0.27	34.69	27.862	25.0	2.905	4300A	1.10	34.76	27.867	24.5	2.982	4300A	1.10	34.76	27.867	24.5	2.982
4400A	0.26	34.68	27.855	25.7	2.924	4400A	0.87	34.73	27.858	25.4	3.015	4400A	0.87	34.73	27.858	25.4	3.015
4500A						4500A	0.45	34.69	27.852	26.0	3.046	4500A	0.45	34.69	27.852	26.0	3.046
4600A						4600A	0.21	34.6									

## RV MELVILLE

## CATO EXPEDITION VI

11

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
2d 35.05		35 26.2W		11/12/72		2123 0024		GMT		4334M		090		11KT		1		090 7	
Z	T	S	Q2	P04	S103	N02	N03	UT	Z	T	S	Q2	S10T	DT	DD				
0	20.63	36.225	5.24	0.06	1.0	0.00	0.0	244.4	0	20.63	36.225	5.24	25.344	244.8	0.000				
10	20.62	36.219	5.32	0.05	1.0	0.00	0.0	245.0	10	20.62	36.219	5.32	25.342	245.0	0.025				
21	20.40	36.204	5.39	0.06	1.2	0.00	0.0	240.4	20	20.42	36.204	5.39	25.385	241.0	0.049				
42	20.01	36.169	5.31	0.06	1.0	0.00	0.0	233.1	30	20.24	36.188	5.36	25.621	237.5	0.073				
62	19.42	36.128	5.40	0.07	0.8	0.00	0.0	221.3	50	19.76	36.148	5.34	25.719	228.2	0.120				
94	19.41	36.174	5.28	0.08	1.0	0.00	0.0	217.8	75	19.42	36.145	5.36	25.807	219.9	0.176				
125	19.33	36.165	5.28	0.11	1.0	0.00	0.0	216.4	100	19.39	36.170	5.28	25.831	217.6	0.232				
156	18.74	36.038	5.33	0.14	1.2	0.11	0.1	211.2	125	19.33	36.165	5.28	25.843	216.4	0.287				
208	16.37	35.701	5.11	0.46	1.7	0.01	2.4	180.8	150	18.90	36.068	5.32	25.882	212.8	0.342				
260	15.08	35.506	5.13	0.56	2.1	0.01	4.6	167.2	200	16.76	35.749	5.15	26.165	185.9	0.445				
312	14.23	35.414	5.10		2.6	0.01	6.1	156.4	250	15.27	35.534	5.13	26.342	169.1	0.537				
415	13.05	35.271	5.08	0.73	3.3	0.00	9.5	143.6	300	14.40	35.430	5.11	26.452	158.6	0.623				
569	9.39	34.758	4.84	1.35	8.8	0.00	19.0	117.6	400	13.23	35.296	5.08	26.594	145.2	0.785				
723	6.36	34.435	5.06	1.75	15.6	0.00	25.5	99.0	500	11.13	34.989	4.93	26.762	129.3	0.933				
876	4.59	34.318	5.16	1.99E	24.1	0.00	28.6E	87.4	600	8.70	34.676	4.87	26.931	113.2	1.066				
921A	4.31	34.317	5.11	2.08	26.9	0.01	30.0	84.6	700	6.75	34.471	5.02	27.057	101.3	1.184				
1031	3.70	34.344	4.91	2.14E	36.5	0.00	31.2E	76.6	800	5.31	34.356	5.11	27.150	92.5	1.291				
1076A	3.61	34.363	4.77	2.19	38.0		31.8	74.4	1000	3.84	34.334	4.98	27.295	78.8	1.481				
1229A	3.16	34.458	4.45	2.27	51.2		32.8	63.1	1200	3.24	34.439	4.49	27.437	65.3	1.642				
1382A	3.00	34.551	4.35	2.34	55.4		31.9	54.7	1500	2.90	34.626	4.46	27.617	48.2	1.840				
1536A	2.87	34.646	4.51	2.08	57.7		30.8	46.4	1750	2.81	34.747	4.64	27.722	38.3	1.975				
1739A	2.61	34.742	4.85	1.83	55.4	0.00	28.1	38.6	2000	2.83	34.828	5.13	27.785	32.3	2.094				
1943A	2.79	34.807	5.02	1.66	49.2		26.2	33.5	2250	2.97	34.899	5.59	27.829	28.1	2.206				
2197A	2.98	34.893	5.53	1.47	35.9		22.6	28.7	2500	2.93	34.918	5.77	27.849	26.2	2.315				
2453A	2.94	34.917	5.74	1.45	32.8		21.5	26.5	2750	2.83	34.924	5.85	27.862	25.0	2.423				
2708A	2.85	34.927	5.85	1.38	32.0		20.8	25.0	3000	2.70	34.912	5.84	27.864	24.8	2.532				
2964A	2.72	34.913	5.84	1.44	34.9	0.00	20.9	25.0	3250	2.52	34.902	5.86	27.873	24.0	2.640				
3222A	2.54	34.905	5.86	1.41	38.7		21.1	24.1	3500	2.20	34.873	5.81	27.876	23.7	2.745				
3479A	2.24	34.878	5.83	1.52	50.1		22.6	23.7	3750	1.67	34.819	5.54	27.874	23.9	2.843				
3738A	1.69	34.821	5.55	1.71	72.2		25.6	23.9	4000	1.59	34.783	5.31	27.866	24.7	2.936				
3999A	1.39	34.783	5.31	1.84	85.4		27.5	24.7	4250	1.16	34.761	5.40	27.864	24.8	3.025				
4208A	1.187	34.766	5.33	1.94	94.8	0.00	28.8	24.6											
4261A	1.157	34.760	5.42	1.99	96.1		29.0	24.9											
4312A	1.137	34.757	5.33	1.99	98.0	0.00	28.9	25.0											

## RV MELVILLE

## CATO EXPEDITION VI

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
30 15.2S		38 48.5W		11/13/72		211A 0207		4135M		030		14KT		1		040 6	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD		
1	20.53	36.032	5.27	0.03	1.0	0.01	0.0		0	20.70	36.032	5.27	25.379	260.6	0.000		
10	20.69	36.046	5.26	0.02	1.0	0.00	0.0	259.3	10	20.69	36.046	5.26	25.392	259.3	0.026		
36	20.22	36.117	5.28	0.02	1.0	0.00	0.0	242.2	20	20.51	36.044	5.27	25.440	254.7	0.052		
63	18.39	35.940	5.44	0.06	0.8	0.00	0.0	210.0	30	20.33	36.078	5.28	25.515	247.6	0.077		
95	17.65	35.898	5.22	0.17	1.4	0.05	0.3	195.6	50	19.29	36.028	5.37	25.750	225.2	0.125		
113A	17.27	35.835	5.26	0.14	1.5	0.00	0.4	191.4	75	18.02	35.919	5.36	25.990	202.5	0.179		
157	16.05	35.665	5.12	0.34	1.8	0.02	2.7	176.4	100	17.55	35.881	5.23	26.076	194.3	0.229		
216A	15.14	35.589	5.06	0.43	2.1		4.5	162.4	125	16.93	35.783	5.23	26.148	187.4	0.278		
319A	14.06	35.440	5.02	0.59	2.8	0.00	7.2	151.1	150	16.24	35.688	5.15	26.238	178.9	0.325		
422A	12.79	35.239	4.93	0.81	3.9		10.2	141.0	200	15.34	35.601	5.07	26.378	165.6	0.413		
525A	10.75	34.939	4.78	0.96	6.4		15.3	126.4	250	14.76	35.544	5.05	26.462	157.7	0.498		
629A	8.00	34.595	4.82	1.51	11.3		21.6	108.9	300	14.24	35.470	5.03	26.517	152.5	0.579		
732A	5.89	34.376	5.32	1.71	14.7		24.9	97.7	400	13.10	35.288	4.95	26.614	143.3	0.737		
887A	4.31	34.281	5.47	1.95	22.9	0.00	28.2	87.3	500	11.31	35.018	4.81	26.751	130.3	0.885		
990A	3.67	34.288	5.27	2.05	31.2		30.3	80.6	600	8.77	34.684	4.81	26.927	113.6	1.019		
1247A	2.95	34.443	4.57	2.26	52.8		32.8	62.4	700	6.47	34.431	5.16	27.064	100.6	1.137		
1451A	2.82	34.564	4.42	2.16	59.2	0.00	31.9	52.2	800	5.03	34.313	5.39	27.149	92.6	1.243		
1644A	2.81	34.695	4.51	2.04	57.7	0.00	29.8	42.2	1000	3.62	34.293	5.24	27.284	79.8	1.432		
1654A	2.80	34.693	4.61	2.02	57.8		29.7	42.2	1200	3.01	34.409	4.69	27.434	65.6	1.594		
1951B	2.90	34.828	5.29	1.70	47.1	0.00	25.2	32.9	1500	2.82	34.613	4.44	27.614	48.6	1.791		
2258B	2.94	34.891	5.65	1.50	37.1	0.00	22.6	28.5	1750	2.83	34.729	4.83	27.706	40.2	1.929		
2566B	2.877	34.919	5.83	1.40	33.7		21.4	25.8	2000	2.91	34.841	5.37	27.789	32.0	2.050		
2874B	2.74	34.911	5.81	1.36	35.2		21.0	25.3	2250	2.94	34.889	5.64	27.825	28.6	2.162		
3284B	2.319	34.884	5.78	1.47	47.1		22.1	23.9	2500	2.90	34.915	5.81	27.849	26.2	2.272		
3699B	1.585	34.812	5.50	1.77	77.4		26.2	23.8	2750	2.81	34.915	5.82	27.857	25.4	2.380		
4012B	1.222	34.766	5.34	1.93	94.7		29.0	24.9	3000	2.64	34.905	5.80	27.864	24.8	2.468		
4116B	1.100	34.752	5.30	1.99	99.4		28.3U	25.1	3250	2.36	34.887	5.78	27.873	24.0	2.594		
									3500	1.94	34.845	5.65	27.875	23.8	2.695		
									3750	1.52	34.804	5.47	27.873	24.0	2.789		
									4000	1.23	34.768	5.35	27.864	24.8	2.878		

F1 NUTRIENT SAMPLES AT 876 AND 1031 METERS APPEAR TO HAVE BEEN REVERSED. THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

11 STD						CATO EXPEDITION VI						12 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
28 35.0S	38 28.2W	11/12/72	2002 GMT			30 15.2S	38 48.5W	11/13/72	1952 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	20.62	36.22	25.543	244.9	0.000	0	20.74	36.04	25.374	261.0	0.000	0	20.74	36.04	25.374	261.0	0.000
10	20.59	36.21	25.544	244.9	0.025	10	20.64	36.04	25.401	258.5	0.026	10	20.64	36.04	25.401	258.5	0.026
20	20.48	36.21	25.573	242.1	0.049	20	20.32	35.05	25.495	249.6	0.051	20	20.32	35.05	25.495	249.6	0.051
30	20.42	36.21	25.589	240.5	0.073	30	20.20	36.06	25.534	245.8	0.076	30	20.20	36.06	25.534	245.8	0.076
40	20.38	36.20	25.593	240.2	0.097	40	20.17	36.13	25.595	240.0	0.101	40	20.17	36.13	25.595	240.0	0.101
50	19.82	36.15	25.703	229.7	0.121	50	19.93	36.13	25.659	233.9	0.125	50	19.93	36.13	25.659	233.9	0.125
60	19.40	36.11	25.783	222.1	0.144	60	18.78	36.02	25.874	213.5	0.147	60	18.78	36.02	25.874	213.5	0.147
70	19.36	36.13	25.808	219.7	0.166	70	17.76	35.85	25.999	201.6	0.168	70	17.76	35.85	25.999	201.6	0.168
80	19.37	36.16	25.829	217.6	0.188	80	17.61	35.87	26.051	196.7	0.188	80	17.61	35.87	26.051	196.7	0.188
90	19.40	36.18	25.836	217.1	0.210	90	17.46	35.84	26.065	195.4	0.208	90	17.46	35.84	26.065	195.4	0.208
100	19.39	36.18	25.839	216.6	0.232	100	17.31	35.85	26.109	191.2	0.226	100	17.31	35.85	26.109	191.2	0.226
125	19.31	36.17	25.852	215.6	0.287	125	16.73	35.76	26.179	184.6	0.276	125	16.73	35.76	26.179	184.6	0.276
150	19.14	36.11	25.850	215.6	0.343	150	16.33	35.70	26.226	180.0	0.322	150	16.33	35.70	26.226	180.0	0.322
200	16.70	35.70	26.140	186.3	0.447	200A	14.35	35.59	26.366	166.6	0.412	200A	14.35	35.59	26.366	166.6	0.412
250	15.21	35.51	26.336	169.7	0.540	250A	14.83	35.56	26.458	158.0	0.497	250A	14.83	35.56	26.458	158.0	0.497
300	14.33	35.41	26.451	156.7	0.626	300A	14.31	35.49	26.517	152.5	0.578	300A	14.31	35.49	26.517	152.5	0.578
350	13.89	35.39	26.531	151.1	0.708	350A	13.74	35.41	26.576	146.9	0.658	350A	13.74	35.41	26.576	146.9	0.658
400	13.28	35.32	26.602	144.4	0.787	400A	13.04	35.28	26.620	142.7	0.735	400A	13.04	35.28	26.620	142.7	0.735
450	12.32	35.16	26.670	138.0	0.863	450A	12.15	35.13	26.679	137.1	0.811	450A	12.15	35.13	26.679	137.1	0.811
500	11.32	35.00	26.736	131.7	0.937	500A	11.14	34.99	26.761	129.3	0.883	500A	11.14	34.99	26.761	129.3	0.883
550	9.86	34.82	26.855	120.4	1.006	550A	10.22	34.86	26.824	123.4	0.953	550A	10.22	34.86	26.824	123.4	0.953
600	8.70	34.68	26.936	112.6	1.070	600A	8.71	34.67	26.926	113.7	1.018	600A	8.71	34.67	26.926	113.7	1.018
650	7.81	34.57	26.985	108.1	1.131	650A	7.76	34.56	26.985	108.1	1.079	650A	7.76	34.56	26.985	108.1	1.079
700	6.70	34.46	27.056	101.4	1.188	700A	6.79	34.46	27.044	102.6	1.137	700A	6.79	34.46	27.044	102.6	1.137
750	6.01	34.40	27.099	97.3	1.243	750A	5.72	34.34	27.088	98.3	1.192	750A	5.72	34.34	27.088	98.3	1.192
800	5.23	34.34	27.148	92.7	1.296	800A	5.12	34.30	27.129	94.5	1.245	800A	5.12	34.30	27.129	94.5	1.245
850	4.72	34.32	27.191	88.7	1.346	850A	4.68	34.28	27.163	91.2	1.296	850A	4.68	34.28	27.163	91.2	1.296
900	4.39	34.31	27.219	86.0	1.394	900A	4.18	34.27	27.210	86.9	1.345	900A	4.18	34.27	27.210	86.9	1.345
950	4.04	34.32	27.264	81.7	1.440	950A	3.94	34.27	27.235	84.5	1.392	950A	3.94	34.27	27.235	84.5	1.392
1000	3.78	34.33	27.298	78.4	1.484	1000A	3.55	34.27	27.274	80.8	1.437	1000A	3.55	34.27	27.274	80.8	1.437
1100A	3.56	34.37	27.352	73.4	1.568	1100A	3.24	34.34	27.359	72.7	1.522	1100A	3.24	34.34	27.359	72.7	1.522
1200A	3.23	34.43	27.431	65.8	1.647	1200A	3.02	34.42	27.443	64.7	1.598	1200A	3.02	34.42	27.443	64.7	1.598
1300A	3.05	34.49	27.496	59.7	1.718	1300A	2.92	34.47	27.492	60.1	1.669	1300A	2.92	34.47	27.492	60.1	1.669
1400A	2.98	34.55	27.550	54.6	1.785	1400A	2.84	34.53	27.547	54.9	1.735	1400A	2.84	34.53	27.547	54.9	1.735
1500A	2.88	34.61	27.607	49.2	1.846	1500A	2.80	34.60	27.606	49.3	1.796	1500A	2.80	34.60	27.606	49.3	1.796
1600A	2.84	34.67	27.658	44.3	1.903	1600A	2.79	34.67	27.663	43.9	1.853	1600A	2.79	34.67	27.663	43.9	1.853
1700A	2.82	34.73	27.708	39.6	1.956	1700A	2.82	34.72	27.700	40.4	1.906	1700A	2.82	34.72	27.700	40.4	1.906
1800A	2.80	34.76	27.734	37.2	2.006	1800A	2.83	34.76	27.731	37.4	1.956	1800A	2.83	34.76	27.731	37.4	1.956
1900A	2.79	34.79	27.758	34.8	2.054	1900A	2.86	34.81	27.768	33.9	2.004	1900A	2.86	34.81	27.768	33.9	2.004
2000A	2.79	34.81	27.774	33.5	2.100	2000A	2.92	34.84	27.787	32.2	2.050	2000A	2.92	34.84	27.787	32.2	2.050
2100A	2.84	34.84	27.794	31.5	2.146	2100A	2.94	34.87	27.809	30.1	2.095	2100A	2.94	34.87	27.809	30.1	2.095
2200A	2.98	34.89	27.821	28.9	2.191	2200A	2.94	34.88	27.817	29.3	2.140	2200A	2.94	34.88	27.817	29.3	2.140
2300A	2.99	34.90	27.828	28.3	2.236	2300A	2.94	34.90	27.833	27.8	2.184	2300A	2.94	34.90	27.833	27.8	2.184
2400A	2.98	34.92	27.845	26.7	2.280	2400A	2.90	34.91	27.844	26.7	2.228	2400A	2.90	34.91	27.844	26.7	2.228
2500A	2.96	34.92	27.847	26.5	2.323	2500A	2.91	34.92	27.851	26.0	2.271	2500A	2.91	34.92	27.851	26.0	2.271
2600A	2.88	34.92	27.854	25.8	2.367	2600A	2.87	34.92	27.855	25.7	2.314	2600A	2.87	34.92	27.855	25.7	2.314
2700A	2.86	34.92	27.856	25.6	2.410	2700A	2.82	34.91	27.851	26.0	2.357	2700A	2.82	34.91	27.851	26.0	2.357
2800A	2.81	34.92	27.860	25.2	2.454	2800A	2.76	34.91	27.857	25.5	2.401	2800A	2.76	34.91	27.857	25.5	2.401
2900A	2.73	34.92	27.868	24.5	2.497	2900A	2.71	34.92	27.869	24.3	2.444	2900A	2.71	34.92	27.869	24.3	2.444
3000A	2.70	34.92	27.870	24.3	2.540	3000A	2.65	34.91	27.867	24.6	2.487	3000A	2.65	34.91	27.867	24.6	2.487
3100A	2.64	34.92	27.875	23.7	2.583	3100A	2.56	34.90	27.867	24.6	2.530	3100A	2.56	34.90	27.867	24.6	2.530
3200A	2.57	34.90	27.866	24.7	2.626	3200A	2.47	34.90	27.874	23.9	2.572	3200A	2.47	34.90	27.874	23.9	2.572
3300A	2.48	34.91	27.881	23.2	2.669	3300A	2.36	34.88	27.868	24.5	2.614	3300A	2.36	34.88	27.868	24.5	2.614
3400A	2.37	34.90	27.883	23.1	2.711	3400A	2.19	34.89	27.890	22.4	2.655	3400A	2.19	34.89	27.890	22.4	2.655
3500A	2.19	34.87	27.874	23.9	2.752	3500A	1.98	34.86	27.883	23.1	2.694	3500A	1.98	34.86	27.883	23.1	2.694
3600A	2.02	34.85	27.872	24.1	2.793	3600A	1.74	34.83	27.878	23.6	2.733	3600A	1.74	34.83	27.878	23.6	2.733
3700A	1.80	34.83	27.873	24.0	2.833	3700A	1.62	34.81	27.870	24.2	2.770	3700A	1.62	34.81	27.870	24.2	2.770
3800A	1.64	34.81	27.869	24.4	2.871	3800A	1.48	34.79	27.865	24.8	2.807	3800A	1.48	34.79	27.865	24.8	2.807
3900A	1.50	34.79	27.863	24.9	2.909	3900A	1.32	34.78	27.868	24.4	2.843	3900A	1.32	34.78	27.868	24.4	2.843
4000A	1.40	34.79	27.870	24.2	2.946	4000A	1.22	34.76	27.859	25.3	2.879	4000A	1.22	34.76	27.859	25.3	2.879
4100A	1.29	34.77	27.862	25.0	2.982	4100A	1.08	34.75	27.861	25.2	2.914	4100A	1.08	34.75	27.861	25.2	2.914
4200A	1.20	34.77	27.869	24.4	3.017	4200A						4142A	1.09	34.74	27.856	25.6	2.928
4300A	1.14	34.77	27.873	24.0	3.052												
4360A	1.03	34.75	27.864	24.9	3.072												

RV MELVILLE								CATO EXPEDITION VI								13
LATITUDE 30 09.3S		LONGITUDE 39 24.7W		MO/DAY/YR 11/14/72		MESSENGER 0949 1209		TIME GMT	BOTTOM 4760M	WIND 010	SPEED 9KT	WEATHER 1	DOMINANT WAVES 010 4			
Z	T	S	Q2	P04	SI03	N02	N03	DT	Z	T	S	Q2	SI0T	DT	DD	
0	20.60	36.206	5.23	0.02	1.5	0.01	0.0	245.4	0	20.60	36.206	5.23	25.536	245.4	0.000	
36A	20.28	36.236	5.21	0.10	0.7	0.00	0.0	235.1	10	20.56	36.224	5.22	25.564	242.9	0.024	
53	19.97	36.212	5.29	0.02	1.0	0.00	0.0	229.0	20	20.48	36.235	5.22	25.594	240.1	0.049	
94	18.41	35.980	5.31	0.08	1.2	0.01	0.0	207.5	30	20.37	36.237	5.21	25.626	237.0	0.073	
112A	17.86	35.902	0.19		1.2	0.04	0.1	200.2	50	20.04	36.217	5.28	25.699	230.1	0.120	
126	17.64	35.893	5.46	0.10	1.3	0.02	0.0	195.7	75	19.18	36.095	5.30	25.830	217.6	0.176	
157	17.12	35.831	5.20	0.19	1.0	0.09	1.0	188.2	100	18.21	35.948	5.35	25.964	204.9	0.230	
188A	16.34	35.739	5.15	0.29	1.3	0.04	2.0	177.4	125	17.65	35.892	5.46	26.058	196.0	0.281	
289A	14.65	35.526	4.99	0.49	2.0	0.01	5.8	156.8	150	17.25	35.844	5.27	26.122	189.9	0.330	
440A	12.88	35.255	4.94	0.80	3.7	0.01	10.2	141.5	200	16.09	35.708	5.13	26.288	174.2	0.424	
591A	9.58	34.780	4.78	1.29	8.0	0.00	18.5	118.9	250	15.20	35.599	5.05	26.407	162.9	0.512	
895A	4.47	34.282	5.45	1.93	21.1		28.0	88.9	300	14.53	35.510	4.98	26.485	155.5	0.596	
1298A	2.96	34.435	4.56	2.26	51.8		32.9	63.1	400	13.38	35.338	4.95	26.596	145.0	0.756	
1500A	2.81	34.567	4.34	2.18	59.3		32.1	51.8	500	11.63	35.062	4.86	26.726	132.7	0.906	
1904A	2.87	34.791	4.92	1.85	51.6	0.00	27.0	35.4	600	9.39	34.754	4.80	26.883	117.8	1.044	
2208A	2.95	34.873	5.42	1.56	40.1		23.5	29.9	700	7.43	34.523	5.01	27.003	106.5	1.168	
2614A	2.89	34.914	5.75	1.40	33.6		21.4	26.5	800	5.77	34.371	5.23	27.106	96.7	1.280	
3022A	2.87	34.911	5.81	1.39	37.0		21.1	24.7	1000	4.08	34.333	5.29	27.269	81.2	1.476	
3537A	1.934	34.844	5.54	1.61	62.1		24.0	23.9	1200	3.33	34.408	4.84	27.404	68.4	1.643	
4056A	0.407	34.689	5.13	2.22	124.9	0.00	32.5	25.8	1500	2.81	34.567	4.34	27.579	51.8	1.849	
4370A	0.242	34.678	5.15	2.26	129.7		32.7	25.8	1750	2.85	34.720	4.61	27.697	40.6	1.991	
4634A	0.239	34.675	5.14	2.26	131.2		32.7	26.0	2000	2.90	34.823	5.09	27.775	33.3	2.115	
4687A	0.238	34.675	5.18	2.23	131.4	0.00	32.6	26.0	2250	2.94	34.877	5.47	27.814	29.4	2.230	
									2500	2.91	34.902	5.69	27.838	27.0	2.341	
									2750	2.84	34.915	5.77	27.854	25.6	2.451	
									3000	2.69	34.911	5.81	27.865	24.7	2.560	
									3250	2.42	34.888	5.72	27.869	24.4	2.667	
									3500	2.01	34.850	5.57	27.873	24.0	2.770	
									3750	1.26	34.771	5.35	27.865	24.7	2.863	
									4000	0.55	34.703	5.16	27.856	25.6	2.942	
									4250	0.31	34.683	5.14	27.854	25.8	3.012	
									4500	0.24	34.677	5.15	27.853	25.9	3.078	

RV MELVILLE										CATO EXPEDITION VI										14
LATITUDE 30 07.0S		LONGITUDE 39 19.7W		MO/DAY/YR 11/14/72		MESSENGER 151A 1730		TIME GMT	BOTTOM 4833M	WIND 080	SPEED 12KT	WEATHER 6	DOMINANT WAVES 080 4 8							
Z	T	S	Q2	P04	SI03	N02	N03	DT	Z	T	S	Q2	SI0T	DT	DD					
0	20.52	36.218	5.23	0.03	1.0	0.00	0.0	242.5	0	20.52	36.218	5.23	25.569	242.5	0.000					
52A	20.22	36.268	5.21	0.05	1.0	0.00	0.0	231.2	10	20.46	36.226	5.23	25.591	240.3	0.024					
53	20.18	36.266	5.28	0.02	0.6	0.00	0.0	230.4	20	20.40	36.235	5.22	25.614	238.2	0.048					
78A	19.06	36.067	5.35	0.08	1.0	0.00	0.0	216.9	30	20.35	36.245	5.22	25.637	236.0	0.072					
95	18.09	35.920	5.42	0.08	0.8	0.00	0.0	204.3	50	20.23	36.264	5.21	25.683	231.7	0.119					
127	17.22	35.840	5.24	0.19	1.2	0.09	0.7	189.9	75	19.21	36.097	5.34	25.823	218.3	0.176					
129A	17.60	35.865	5.36V	0.14	1.0	0.04	0.0		100	17.92	35.901	5.41	26.000	201.6	0.229					
158	16.17	35.682	5.04	0.34	1.7	0.02	2.6	177.8	125	17.26	35.842	5.26	26.115	190.6	0.279					
207A	15.71	35.624	5.02	0.42	1.8	0.01	3.5	172.0	150	16.42	35.720	5.09	26.221	180.5	0.327					
284A	14.78	35.519	4.99	0.49	2.0	0.01	5.5	160.0	200	15.73	35.625	5.02	26.307	172.4	0.418					
387A	13.85	35.426	5.02	0.60	2.5	0.01	7.6	147.9	250	15.19	35.563	5.00	26.381	165.4	0.505					
541A	10.49	34.902	4.79	1.17	6.8		16.2	124.7	300	14.66	35.510	5.00	26.458	158.1	0.591					
694A	7.15	34.500	5.03	1.57	12.2		23.0	104.3	400	13.61	35.387	5.00	26.585	146.0	0.753					
1002A	3.87	34.270	5.39	2.03	26.9		29.6	83.8	500	11.50	35.052	4.84	26.743	131.1	0.903					
1412A	2.84	34.524	4.41	2.22	58.8		32.8	55.3	600	9.13	34.722	4.86	26.899	116.3	1.039					
1617A	2.80	34.653	4.52	2.08	58.8		30.6	45.3	700	7.05	34.490	5.04	27.031	103.8	1.160					
2026A	2.91	34.831	5.19	1.68	46.0		25.1	32.8	800	5.64	34.363	5.22	27.116	95.7	1.270					
2332A	2.96	34.901	5.60	1.49	37.3	0.00	22.5	27.9	1000	3.88	34.271	5.39	27.241	83.9	1.468					
2742A	2.81	34.917	5.82	1.40	34.9		21.5	25.4	1200	3.37	34.400	4.92	27.393	69.5	1.639					
3150A	2.552	34.903	5.84	1.43	40.1		21.5	24.3	1500	2.82	34.585	4.46	27.591	50.7	1.845					
3664A	1.673	34.822	5.45	1.75	74.2		26.0	23.7	1750	2.82	34.722	4.71	27.701	40.3	1.985					
4182A	0.54	34.694	5.06	2.21	125.2		32.1	26.2	2000	2.90	34.822	5.14	27.775	33.3	2.109					
4495A	0.177	34.670	5.17	2.28	132.5		33.1	26.1	2250	2.95	34.886	5.50	27.821	28.9	2.223					
4755A	0.198	34.677	5.18	2.26	132.3		33.2	25.6	2500	2.92	34.909	5.73	27.842	26.5	2.333					
4807A	0.208	34.674	5.17	2.24	132.5	0.00	33.4	25.9	2750	2.81	34.916	5.82	27.858	25.4	2.442					
									3000	2.68	34.910	5.83	27.865	24.6	2.550					
									3250	2.41	34.889	5.78	27.871	24.2	2.657					
									3500	2.00	34.851	5.60	27.874	23.9	2.758					
									3750	1.47	34.798	5.36	27.872	24.1	2.853					
									4000	0.91	34.735	5.16	27.859	25.3	2.938					
									4250	0.43	34.687	5.08	27.850	26.2	3.015					
									4500	0.18	34.671	5.17	27.851	26.1	3.083					
									4750	0.20	34.678	5.18	27.856	25.6	3.148					



13 STD						CATO EXPEDITION VI						14 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 09.3S	39 24.7W	11/14/72	0748 GMT			30 07.0S	39 19.7W	11/14/72	1337 GMT			30 07.0S	39 19.7W	11/14/72	1337 GMT		
Z	T	S	SIGMA T	DT	DO	Z	T	S	SIGMA T	DT	DO	Z	T	S	SIGMA T	DT	DO
0	20.62	36.21	25.536	245.6	0.000	0	20.55	36.22	25.562	243.1	0.000	0	20.55	36.22	25.562	243.1	0.000
10	20.52	36.22	25.570	242.4	0.024	10	20.50	36.24	25.591	240.4	0.024	10	20.50	36.24	25.591	240.4	0.024
20	20.35	36.23	25.623	237.3	0.048	20	20.36	36.23	25.621	237.5	0.048	20	20.36	36.23	25.621	237.5	0.048
30	20.29	36.23	25.639	235.8	0.072	30	20.26	36.21	25.632	236.5	0.072	30	20.26	36.21	25.632	236.5	0.072
40	20.17	36.24	25.679	232.0	0.096	40	20.23	36.21	25.640	235.7	0.096	40	20.23	36.21	25.640	235.7	0.096
50	20.02	36.21	25.696	230.4	0.119	50	20.22	36.25	25.673	232.5	0.119	50	20.22	36.25	25.673	232.5	0.119
60	19.77	36.19	25.747	225.5	0.142	60	20.20	36.26	25.686	231.3	0.143	60	20.20	36.26	25.686	231.3	0.143
70	19.59	36.20	25.802	220.3	0.165	70	20.03	36.22	25.701	229.9	0.166	70	20.03	36.22	25.701	229.9	0.166
80	18.91	36.06	25.871	213.8	0.187	80	19.48	36.13	25.777	222.7	0.189	80	19.48	36.13	25.777	222.7	0.189
90	18.65	36.02	25.907	210.4	0.208	90	19.15	36.02	25.779	222.5	0.211	90	19.15	36.02	25.779	222.5	0.211
100	18.19	35.96	25.977	203.7	0.229	100	18.59	35.98	25.891	211.8	0.233	100	18.59	35.98	25.891	211.8	0.233
125	17.70	35.90	26.052	196.6	0.280	125	17.75	35.87	26.017	199.9	0.286	125	17.75	35.87	26.017	199.9	0.286
150	17.45	35.87	26.090	193.0	0.330	150	17.08	35.80	26.126	189.6	0.336	150	17.08	35.80	26.126	189.6	0.336
200A	16.19	35.80	26.336	169.6	0.423	200	15.82	35.62	26.283	174.7	0.430	200	15.82	35.62	26.283	174.7	0.430
250A	15.10	35.59	26.422	161.5	0.510	250	15.17	35.57	26.391	164.4	0.518	250	15.17	35.57	26.391	164.4	0.518
300A	14.57	35.55	26.507	153.4	0.593	300	14.49	35.51	26.494	154.7	0.602	300	14.49	35.51	26.494	154.7	0.602
350A	14.18	35.49	26.545	149.8	0.673	350	14.21	35.49	26.538	150.4	0.683	350	14.21	35.49	26.538	150.4	0.683
400A	13.60	35.40	26.597	144.8	0.752	400	13.46	35.37	26.603	144.3	0.762	400	13.46	35.37	26.603	144.3	0.762
450A	12.81	35.24	26.635	141.3	0.830	450	12.52	35.20	26.662	138.8	0.858	450	12.52	35.20	26.662	138.8	0.858
500A	11.81	35.09	26.714	133.8	0.904	500	11.43	35.02	26.731	132.2	0.912	500	11.43	35.02	26.731	132.2	0.912
550A	10.74	34.92	26.779	127.6	0.976	550	10.43	34.86	26.803	125.4	0.983	550	10.43	34.86	26.803	125.4	0.983
600A	9.62	34.76	26.849	121.1	1.045	600	9.35	34.74	26.878	118.3	1.050	600	9.35	34.74	26.878	118.3	1.050
650A	8.25	34.61	26.951	111.4	1.109	650	8.37	34.63	26.948	111.7	1.113	650	8.37	34.63	26.948	111.7	1.113
700A	7.08	34.43	26.980	108.6	1.169	700	7.23	34.50	27.014	105.4	1.173	700	7.23	34.50	27.014	105.4	1.173
750A	6.27	34.40	27.066	100.5	1.227	750	6.40	34.42	27.065	100.6	1.230	750	6.40	34.42	27.065	100.6	1.230
800A	5.64	34.35	27.106	96.7	1.281	800	5.58	34.31	27.106	96.7	1.285	800	5.58	34.31	27.106	96.7	1.285
850A	4.88	34.29	27.149	92.6	1.334	850	4.87	34.29	27.150	92.5	1.337	850	4.87	34.29	27.150	92.5	1.337
900A	4.53	34.26	27.164	91.2	1.384	900	4.48	34.27	27.177	89.9	1.387	900	4.48	34.27	27.177	89.9	1.387
950A	4.13	34.26	27.207	87.1	1.433	950	4.06	34.26	27.214	86.4	1.435	950	4.06	34.26	27.214	86.4	1.435
1000A	3.90	34.27	27.239	84.1	1.480	1000	3.81	34.26	27.240	84.0	1.482	1000	3.81	34.26	27.240	84.0	1.482
1100A	3.46	34.31	27.314	77.0	1.569	1100	3.38	34.31	27.322	76.2	1.570	1100	3.38	34.31	27.322	76.2	1.570
1200A	3.15	34.37	27.391	69.6	1.651	1200	3.04	34.35	27.385	70.2	1.651	1200	3.04	34.35	27.385	70.2	1.651
1300A	2.96	34.43	27.456	63.5	1.726	1300	2.97	34.44	27.463	62.6	1.726	1300	2.97	34.44	27.463	62.6	1.726
1400A	2.86	34.48	27.505	58.6	1.795	1400	2.86	34.51	27.529	56.6	1.795	1400	2.86	34.51	27.529	56.6	1.795
1500A	2.82	34.56	27.573	52.5	1.860	1500	2.81	34.57	27.581	51.6	1.858	1500	2.81	34.57	27.581	51.6	1.858
1600A	2.79	34.63	27.631	46.9	1.920	1600	2.80	34.63	27.630	47.0	1.917	1600	2.80	34.63	27.630	47.0	1.917
1700A	2.81	34.69	27.677	42.6	1.975	1700	2.81	34.69	27.677	42.6	1.972	1700	2.81	34.69	27.677	42.6	1.972
1800A	2.84	34.74	27.714	39.0	2.027	1800	2.83	34.74	27.715	38.9	2.025	1800	2.83	34.74	27.715	38.9	2.025
1900A	2.85	34.78	27.745	36.1	2.077	1900	2.85	34.78	27.745	36.1	2.074	1900	2.85	34.78	27.745	36.1	2.074
2000A	2.92	34.83	27.779	32.9	2.125	2000	2.91	34.83	27.780	32.6	2.122	2000	2.91	34.83	27.780	32.6	2.122
2100A	2.96	34.86	27.799	31.0	2.171	2100	2.93	34.86	27.802	30.7	2.166	2100	2.93	34.86	27.802	30.7	2.166
2200A	2.95	34.87	27.808	30.2	2.216	2200	2.97	34.89	27.822	28.8	2.213	2200	2.97	34.89	27.822	28.8	2.213
2300A	2.93	34.89	27.825	28.5	2.261	2300	2.96	34.90	27.831	28.0	2.257	2300	2.96	34.90	27.831	28.0	2.257
2400A	2.97	34.91	27.838	27.3	2.306	2400	2.94	34.91	27.840	27.1	2.300	2400	2.94	34.91	27.840	27.1	2.300
2500A	2.94	34.91	27.840	27.1	2.350	2500	2.93	34.92	27.849	26.2	2.344	2500	2.93	34.92	27.849	26.2	2.344
2600A	2.89	34.91	27.845	26.6	2.394	2600	2.89	34.93	27.861	25.1	2.387	2600	2.89	34.93	27.861	25.1	2.387
2700A	2.88	34.92	27.854	25.8	2.438	2700	2.85	34.93	27.865	24.8	2.430	2700	2.85	34.93	27.865	24.8	2.430
2800A	2.81	34.92	27.860	25.2	2.482	2800	2.79	34.93	27.870	24.3	2.473	2800	2.79	34.93	27.870	24.3	2.473
2900A	2.77	34.92	27.864	24.8	2.525	2900	2.75	34.93	27.874	23.9	2.515	2900	2.75	34.93	27.874	23.9	2.515
3000A	2.70	34.91	27.862	25.0	2.569	3000	2.65	34.92	27.871	24.2	2.558	3000	2.65	34.92	27.871	24.2	2.558
3100A	2.63	34.91	27.868	24.4	2.612	3100	2.61	34.92	27.878	23.5	2.600	3100	2.61	34.92	27.878	23.5	2.600
3200A	2.52	34.91	27.878	23.5	2.655	3200	2.52	34.91	27.878	23.5	2.642	3200	2.52	34.91	27.878	23.5	2.642
3300A	2.39	34.89	27.873	24.0	2.697	3300	2.40	34.90	27.880	23.3	2.684	3300	2.40	34.90	27.880	23.3	2.684
3400A	2.25	34.88	27.877	23.6	2.739	3400	2.23	34.89	27.887	22.7	2.725	3400	2.23	34.89	27.887	22.7	2.725
3500A	2.09	34.86	27.874	23.9	2.779	3500	2.08	34.86	27.875	23.6	2.765	3500	2.08	34.86	27.875	23.6	2.765
3600A	1.89	34.83	27.866	24.7	2.820	3600	1.85	34.84	27.877	23.8	2.805	3600	1.85	34.84	27.877	23.8	2.805
3700A	1.60	34.82	27.874	23.9	2.856	3700	1.65	34.82	27.876	23.7	2.842	3700	1.65	34.82	27.876	23.7	2.842
3800A	1.54	34.80	27.868	24.4	2.896	3800	1.48	34.80	27.873	24.0	2.879	3800	1.48	34.80	27.873	24.0	2.879
3900A	0.98	34.75	27.851	26.1	2.931	3900	1.33	34.78	27.867	24.5	2.915	3900	1.33	34.78	27.867	24.5	2.915
4000A	0.66	34.70	27.847	26.4	2.964	4000	1.18	34.77	27.870	24.3	2.950	4000	1.18	34.77	27.870	24.3	2.950
4100A	0.40	34.69	27.855	25.7	2.993	4100	0.88	34.73	27.858	25.4	2.983	4100	0.88	34.73	27.858	25.4	2.983
4200A	0.27	34.68	27.854	25.8	3.020	4200	0.53	34.69	27.847	26.4	3.014	4200	0.53	34.69	27.847	26.4	3.014
4300A	0.25	34.68	27.855	25.7	3.047	4300	0.33	34.66	27.851	26.1	3.043	4300	0.33	34.66	27.851	26.1	3.043
4400A	0.23	34.67	27.848	26.3	3.073	4400	0.17	34.67	27.852	26.0	3.070	4400	0.17	34.67	27.852	26.0	3.070
4500A	0.23	34.67	27.848	26.3	3.100	4500	0.16	34.67	27.852	26.0	3.095	4500	0.16	34.67	27.852	26.0	3.095
4600A	0.23	34.67	27.848	26.3	3.1												

RV MELVILLE										CATO EXPEDITION VI										15
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES		
31 54.7S		38 57.0W		11/15/72		0750 0956		GMT		4040M		150		15KT		1		160 10		
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	SIGT	DT	DD					
1	18.98	35.994	5.44	0.03	1.0	0.01	0.0	220.3	0	18.98	35.994	5.44	25.803	220.3	0.000					
43	18.60	36.013	5.58	0.04	0.8	0.00	0.0	209.7	10	18.69	35.999	5.49	25.831	217.6	0.022					
85	18.31	35.999	5.46	0.04	1.0	0.00	0.0	203.8	20	18.80	36.005	5.54	25.859	214.9	0.044					
93A	18.12 V	35.981 V	5.48V	0.10	1.2	0.01	0.0		30	18.71	36.009	5.56	25.885	212.5	0.065					
107	18.07	35.967	5.41	0.06	1.0	0.00	0.0	200.4	50	18.56	36.013	5.57	25.926	208.6	0.107					
128	17.63	35.925	5.52	0.09	1.2	0.11	0.1	193.1	75	18.38	36.005	5.50	25.963	205.0	0.160					
195A	16.61	35.837	5.40	0.19	1.5	0.04	0.1	176.3	100	18.16	35.977	5.42	25.998	201.7	0.211					
297A	15.00	35.570	5.00	0.54	2.7	0.01	5.4	160.9	125	17.70	35.930	5.50	26.076	194.3	0.262					
400A	13.76	35.406	5.00	0.55	3.1		7.9	147.6	150	17.26	35.895	5.48	26.155	186.8	0.311					
502A	12.00	35.112	4.84	0.90	4.8		12.7	135.6	200	16.53	35.823	5.38	26.276	175.3	0.404					
707A	6.74	34.423	5.39	1.66	11.3		23.8	104.7	250	15.72	35.695	5.18	26.363	167.1	0.493					
809A	5.19	34.299	5.65	1.77	15.6	0.00	26.2	95.3	300	14.96	35.565	5.00	26.433	160.4	0.579					
911A	4.54	34.293	5.37	1.95	22.1		28.6	88.8	400	13.76	35.406	5.00	26.569	147.6	0.743					
1267A	3.00	34.385	4.74	2.23	49.2		33.2	67.2	500	12.04	35.118	4.84	26.692	135.9	0.897					
1421A	2.82	34.486	4.46	2.23	58.2		33.5	58.0	600	9.45	34.733	5.03	26.855	120.4	1.038					
1676A	2.83	34.670	4.57	2.11	61.5		50.7	44.2	700	6.91	34.441	5.36	27.011	105.7	1.162					
1962A	2.97	34.809	5.07	1.76	49.2	0.00	26.5	34.9	800	5.29	34.507	5.64	27.113	96.0	1.273					
2339A	3.09	34.913	5.69	1.46	33.4		21.8	28.1	1000	4.03	34.297	5.19	27.246	83.3	1.471					
2647A	2.96	34.923	5.85	1.39	32.1		21.0	26.2	1200	3.19	34.353	4.84	27.374	71.2	1.642					
2852A	2.83	34.918	5.74	1.39	34.1		21.1	25.5	1500	2.82	34.548	4.49	27.563	53.4	1.856					
3263A	2.631	34.911	5.82	1.43	38.0		21.2	24.4	1750	2.86	34.710	4.67	27.688	41.5	2.001					
3625A	1.916	34.842	5.62	1.67	66.0	0.00	24.7	23.9	2000	2.98	34.616	5.11	27.762	34.5	2.127					
3987A	1.221	34.765	5.34	1.97	96.2		28.8	24.9	2250	3.08	34.894	5.56	27.816	29.4	2.245					
4040A	1.158	34.756	5.29	1.97	100.0	0.00	29.1	25.2	2500	3.04	34.923	5.77	27.842	26.9	2.358					
									2750	2.69	34.920	5.60	27.853	25.8	2.470					
									3000	2.79	34.918	5.76	27.861	25.0	2.580					
									3250	2.64	34.911	5.82	27.869	24.4	2.691					
									3500	2.19	34.867	5.71	27.872	24.1	2.798					
									3750	1.65	34.812	5.53	27.870	24.1	2.896					
									4000	1.20	34.762	5.33	27.862	25.0	2.987					

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
31 54.0S		39 55.1W		11/15/72		1716 1928		GMT	4005M	180	14KT	1	180 5 6						
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	SIGT	DT	DB				
0	19.73	36.163	5.33	0.02	1.2	0.00	0.0	226.5	0	19.73	36.163	5.33	25.737	226.5	0.000				
41	19.47	36.162	5.36	0.01	1.0	0.00	0.0	220.1	10	19.66	36.162	5.34	25.755	224.8	0.023				
73A	19.30	36.154	5.32	0.08	1.0	0.00	0.0	216.5	20	19.60	36.162	5.34	25.772	223.1	0.045				
83	19.00	36.119	5.34	0.03	1.0	0.00	0.0	211.7	30	19.54	36.162	5.35	25.788	221.6	0.067				
105	18.22	35.961	5.37	0.07	1.0	0.00	0.0	204.4	50	19.42	36.154	5.34	25.815	219.1	0.112				
125A	17.46	35.867	5.23	0.18	1.2	0.10	0.6	193.4	75	19.25	36.147	5.32	25.852	215.6	0.167				
126	17.45	35.861	5.23	0.11	1.3	0.10	0.6	193.6	100	18.41	35.998	5.36	25.952	206.1	0.220				
229A	15.22	35.599	5.00	0.47	2.1	0.01	5.0	163.4	125	17.46	35.867	5.23	26.085	193.4	0.271				
333A	14.01	35.434	4.99	0.60	2.7		7.6	150.5	150	16.99	35.761	5.19	26.118	190.3	0.320				
436A	12.69	35.224	4.91	0.80	3.7		10.8	140.2	200	15.92	35.628	5.08	26.268	176.1	0.415				
641A	8.54	34.654	4.83	1.47	9.8		21.1	112.4	250	14.94	35.564	5.00	26.438	160.0	0.502				
744A	6.23	34.414	5.14	1.72	14.1		25.0	98.9	300	14.34	35.485	4.99	26.506	153.5	0.585				
847A	4.99	34.311	5.37	1.85	18.2		27.2	92.2	400	13.19	35.304	4.94	26.608	143.8	0.743				
1206A	3.22	34.379	4.72	2.23	44.5		32.5	69.6	500	11.54	35.049	4.89	26.733	132.0	0.893				
1361A	2.91	34.463	4.51	2.27	54.2		33.0	60.5	600	9.47	34.767	4.85	26.878	118.3	1.030				
1574P	2.83	34.599	4.61	2.18	58.9	0.00	31.7	49.6	700	7.16	34.503	5.00	27.026	104.2	1.153				
1826P	2.89	34.729	4.61	1.97	56.5		29.1	40.3	800	5.47	34.348	5.28	27.125	94.9	1.263				
2117P	3.24	34.881	5.35	1.55	35.9		23.4	31.9	1000	3.90	34.292	5.22	27.255	82.4	1.458				
2366P	3.23	34.922	5.69	1.40	29.0		21.3	28.7	1200	3.23	34.376	4.74	27.388	69.9	1.628				
2530P	3.16	34.931	5.70	1.36	28.4		20.9	27.4	1500	2.86	34.556	4.55	27.565	53.1	1.840				
2856P	2.950	34.934	5.84	1.36	30.4	0.00	20.5	25.3	1750	2.87	34.694	4.61	27.674	42.8	1.986				
3140P	2.599	34.891	5.64	1.48	43.7		22.5	25.6	2000	3.10	34.626	5.03	27.758	34.8	2.115				
3451P	2.066	34.837	5.44	1.68	64.7		25.0	25.5	2250	3.23	34.906	5.57	27.810	29.9	2.236				
3488P	1.98	34.844	5.52	1.64	63.4	0.00	24.6	24.3	2500	3.18	34.929	5.70	27.834	27.6	2.353				
									2750	3.03	34.935	5.81	27.852	25.8	2.467				
									3000	2.79	34.913	5.76	27.857	25.5	2.580				
									3250	2.44	34.874	5.57	27.856	25.6	2.690				
									3500	1.96	34.846	5.54	27.873	24.0	2.793				

15 STD						CATO EXPEDITION VI						16 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
31 54.7S	38 57.0W	11/15/72	0618 GMT			31 54.0S	39 55.1W	11/15/72	1547 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.24	36.05	25.779	222.6	0.000	0	19.84	36.21	25.744	225.9	0.000	0	19.84	36.21	25.744	225.9	0.000
10	19.18	36.05	25.794	221.1	0.022	10	19.82	36.20	25.741	226.1	0.023	10	19.82	36.20	25.741	226.1	0.023
20	18.85	36.03	25.864	214.5	0.044	20	19.76	36.16	25.742	226.0	0.045	20	19.76	36.16	25.742	226.0	0.045
30	18.69	36.03	25.904	210.6	0.065	30	19.68	36.17	25.755	224.7	0.068	30	19.68	36.17	25.755	224.7	0.068
40	18.61	36.02	25.917	209.4	0.087	40	19.47	36.16	25.803	220.3	0.090	40	19.47	36.16	25.803	220.3	0.090
50	18.60	36.51	25.912	209.3	0.108	50	19.45	36.15	25.800	220.5	0.112	50	19.45	36.15	25.800	220.5	0.112
60	18.57	36.61	25.919	209.2	0.129	60	19.40	36.15	25.813	219.2	0.155	60	19.40	36.15	25.813	219.2	0.155
70	18.53	36.01	25.930	208.2	0.150	70	19.30	36.14	25.832	217.5	0.157	70	19.30	36.14	25.832	217.5	0.157
80	18.45	36.01	25.950	206.3	0.171	80	19.01	36.11	25.884	212.6	0.179	80	19.01	36.11	25.884	212.6	0.179
90	18.31	36.01	25.985	203.0	0.192	90	18.92	36.08	25.884	212.6	0.200	90	18.92	36.08	25.884	212.6	0.200
100	18.22	36.01	26.007	200.0	0.212	100	18.42	35.99	25.942	207.0	0.221	100	18.42	35.99	25.942	207.0	0.221
125	17.95	35.97	26.044	197.4	0.263	125	17.45	35.85	26.075	194.4	0.273	125	17.45	35.85	26.075	194.4	0.273
150A	17.27	35.93	26.180	184.5	0.312	150A	17.16	35.80	26.107	191.4	0.322	150A	17.16	35.80	26.107	191.4	0.322
200A	16.58	35.85	26.283	174.7	0.404	200A	16.08	35.67	26.284	174.5	0.416	200A	16.08	35.67	26.284	174.5	0.416
250A	15.64	35.66	26.354	147.9	0.494	250A	15.13	35.56	26.392	164.3	0.504	250A	15.13	35.56	26.392	164.3	0.504
300A	14.97	35.61	26.466	157.3	0.579	300A	14.47	35.48	26.475	156.5	0.589	300A	14.47	35.48	26.475	156.5	0.589
350A	14.43	35.54	26.530	151.3	0.661	350A	13.96	35.41	26.526	151.7	0.671	350A	13.96	35.41	26.526	151.7	0.671
400A	13.80	35.44	26.587	145.9	0.741	400A	13.23	35.26	26.566	147.9	0.751	400A	13.23	35.26	26.566	147.9	0.751
450A	12.85	35.28	26.658	139.1	0.818	450A	12.62	35.20	26.642	140.6	0.828	450A	12.62	35.20	26.642	140.6	0.828
500A	12.10	35.14	26.697	135.4	0.893	500A	11.64	34.99	26.666	136.1	0.904	500A	11.64	34.99	26.666	136.1	0.904
550A	11.11	34.99	26.767	128.8	0.965	550A	10.23	34.83	26.799	125.7	0.976	550A	10.23	34.83	26.799	125.7	0.976
600A	9.96	34.83	26.846	121.3	1.034	600A	9.15	34.70	26.873	118.8	1.043	600A	9.15	34.70	26.873	118.8	1.043
650A	8.33	34.62	26.946	111.6	1.099	650A	8.21	34.56	26.916	114.5	1.108	650A	8.21	34.56	26.916	114.5	1.108
700A	7.04	34.45	27.002	106.6	1.159	700A	7.08	34.44	26.988	107.8	1.169	700A	7.08	34.44	26.988	107.8	1.169
750A	5.73	34.33	27.079	99.2	1.216	750A	6.13	34.36	27.052	101.7	1.227	750A	6.13	34.36	27.052	101.7	1.227
800A	5.22	34.30	27.117	95.6	1.269	800A	5.45	34.32	27.106	96.7	1.281	800A	5.45	34.32	27.106	96.7	1.281
850A	4.88	34.31	27.165	91.1	1.320	850A	4.96	34.29	27.140	93.5	1.334	850A	4.96	34.29	27.140	93.5	1.334
900A	4.53	34.29	27.188	88.9	1.370	900A	4.62	34.28	27.170	90.6	1.364	900A	4.62	34.28	27.170	90.6	1.364
950A	4.29	34.29	27.214	86.5	1.416	950A	4.30	34.27	27.197	88.1	1.433	950A	4.30	34.27	27.197	88.1	1.433
1000A	4.03	34.28	27.233	84.6	1.466	1000A	3.97	34.28	27.239	84.0	1.481	1000A	3.97	34.28	27.239	84.0	1.481
1100A	3.52	34.31	27.308	77.5	1.555	1100A	3.56	34.31	27.302	78.1	1.571	1100A	3.56	34.31	27.302	78.1	1.571
1200A	3.19	34.36	27.379	70.6	1.638	1200A	3.27	34.35	27.364	72.2	1.654	1200A	3.27	34.35	27.364	72.2	1.654
1300A	2.98	34.42	27.447	64.4	1.714	1300A	3.06	34.43	27.447	64.3	1.731	1300A	3.06	34.43	27.447	64.3	1.731
1400A	2.85	34.47	27.498	59.5	1.785	1400A	2.85	34.47	27.498	59.5	1.802	1400A	2.85	34.47	27.498	59.5	1.802
1500A	2.82	34.55	27.565	53.2	1.850	1500A	2.80	34.53	27.550	54.6	1.868	1500A	2.80	34.53	27.550	54.6	1.868
1600A	2.80	34.62	27.622	47.8	1.910	1600A	2.81	34.61	27.613	48.6	1.929	1600A	2.81	34.61	27.613	48.6	1.929
1700A	2.84	34.66	27.666	43.6	1.967	1700A	2.90	34.66	27.661	44.1	1.987	1700A	2.90	34.66	27.661	44.1	1.987
1800A	2.86	34.73	27.704	40.0	2.020	1800A	2.86	34.71	27.688	41.5	2.041	1800A	2.86	34.71	27.688	41.5	2.041
1900A	2.91	34.78	27.770	36.6	2.071	1900A	2.90	34.77	27.733	37.3	2.093	1900A	2.90	34.77	27.733	37.3	2.093
2000A	3.01	34.83	27.770	33.7	2.119	2000A	3.07	34.83	27.765	34.2	2.142	2000A	3.07	34.83	27.765	34.2	2.142
2100A	3.08	34.87	27.796	31.3	2.166	2100A	3.18	34.87	27.786	32.2	2.190	2100A	3.18	34.87	27.786	32.2	2.190
2200A	3.11	34.90	27.817	29.3	2.212	2200A	3.22	34.90	27.806	30.3	2.238	2200A	3.22	34.90	27.806	30.3	2.238
2300A	3.09	34.91	27.827	28.4	2.258	2300A	3.22	34.93	27.830	28.0	2.284	2300A	3.22	34.93	27.830	28.0	2.284
2400A	3.07	34.92	27.836	27.4	2.303	2400A	3.18	34.93	27.834	27.7	2.329	2400A	3.18	34.93	27.834	27.7	2.329
2500A	3.04	34.93	27.847	26.4	2.347	2500A	3.15	34.94	27.845	26.6	2.375	2500A	3.15	34.94	27.845	26.6	2.375
2600A	3.00	34.93	27.851	26.1	2.391	2600A	3.09	34.94	27.851	26.1	2.420	2600A	3.09	34.94	27.851	26.1	2.420
2700A	2.95	34.92	27.848	26.4	2.436	2700A	3.05	34.94	27.854	25.8	2.465	2700A	3.05	34.94	27.854	25.8	2.465
2800A	2.87	34.92	27.855	25.7	2.481	2800A	2.97	34.94	27.862	25.1	2.510	2800A	2.97	34.94	27.862	25.1	2.510
2900A	2.82	34.92	27.859	25.3	2.525	2900A	2.91	34.95	27.859	25.3	2.554	2900A	2.91	34.95	27.859	25.3	2.554
3000A	2.78	34.92	27.863	24.9	2.569	3000A	2.80	34.92	27.861	25.1	2.599	3000A	2.80	34.92	27.861	25.1	2.599
3100A	2.74	34.92	27.867	24.6	2.614	3100A	2.63	34.90	27.860	25.2	2.643	3100A	2.63	34.90	27.860	25.2	2.643
3200A	2.68	34.91	27.864	24.6	2.658	3200A	2.50	34.88	27.856	25.6	2.687	3200A	2.50	34.88	27.856	25.6	2.687
3300A	2.64	34.91	27.867	24.5	2.703	3300A	2.34	34.87	27.861	25.1	2.731	3300A	2.34	34.87	27.861	25.1	2.731
3400A	2.50	34.90	27.872	24.1	2.747	3400A	2.06	34.84	27.860	25.2	2.772	3400A	2.06	34.84	27.860	25.2	2.772
3500A	2.33	34.87	27.862	25.0	2.790	3500A	1.85	34.83	27.869	24.4	2.812	3500A	1.85	34.83	27.869	24.4	2.812
3600A	2.06	34.85	27.868	24.4	2.832	3600A	1.38	34.78	27.864	24.9	2.849	3600A	1.38	34.78	27.864	24.9	2.849
3700A	1.84	34.83	27.870	24.3	2.873	3700A	0.93	34.73	27.854	25.7	2.884	3700A	0.93	34.73	27.854	25.7	2.884
3800A	1.57	34.80	27.866	24.6	2.911	3800A	0.63	34.70	27.849	26.2	2.915	3800A	0.63	34.70	27.849	26.2	2.915
3900A	1.36	34.77	27.857	25.5	2.948	3900A	0.42	34.69	27.854	25.8	2.944	3900A	0.42	34.69	27.854	25.8	2.944
4000A	1.19	34.76	27.861	25.1	2.984	4000A	0.36	34.68	27.849	26.3	2.972	4000A	0.36	34.68	27.849	26.3	2.972
4074A	0.92	34.73	27.855	25.7	3.009												

## RV MELVILLE

## CATO EXPEDITION VI

17

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER	DOMINANT WAVES	
35 10.2S		40 44.5W		11/16/72		1035 1231		GMT	4723M		130	18KT	1	100 7	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD
0	18.65	36.032	5.72	0.05	1.5 0.00	0.0	209.5	0	0	18.65	36.032	5.72	25.916	209.5	0.000
21A	18.40	36.080	5.58	0.13	1.0 0.00	0.0	199.4	10	10	18.51	36.065	5.63	25.978	203.7	0.021
42	18.32	36.083	5.62	0.04	1.0 0.00	0.0	197.9	20	20	18.41	36.085	5.58	26.019	199.7	0.041
63	18.29	36.093	5.47	0.09	0.8 0.00	0.0	196.5	30	30	18.35	36.080	5.60	26.029	198.8	0.061
99A	17.59	36.016	5.51	0.12	1.2 0.01	0.0	185.6	50	50	18.31	36.082	5.57	26.042	197.6	0.101
105	17.31	35.963	5.56	0.09	1.3 0.03	0.0	183.0	75	75	18.20	36.096	5.48	26.080	193.9	0.150
126	16.85	35.900	5.43	0.13	1.2 0.20	0.6	177.1	100	100	17.54	36.006	5.52	26.172	185.2	0.198
203A	15.82	35.746	5.25	0.34	1.5 0.01	3.2	165.5	125	125	16.86	35.699	5.44	26.255	177.3	0.245
358A	14.05	35.470	4.96	0.54	2.6 0.01	7.8	148.7	150	150	16.47	35.644	5.35	26.305	172.5	0.290
514A	10.80	34.928	4.05	1.08	5.5 0.01	15.3	128.1	200	200	15.85	35.750	5.25	26.376	165.8	0.377
719A	6.01	34.383	5.44	1.71	12.3	24.1	98.6	250	250	15.34	35.677	5.15	26.436	160.1	0.462
1027A	3.71	34.280	6.10	2.06	28.5	30.0	81.5	300	300	14.77	35.589	5.05	26.494	154.7	0.545
1233A	2.99	34.353	4.66	2.23	44.5	32.5	69.5	400	400	13.26	35.330	4.93	26.613	143.4	0.704
1438A	2.74	34.473	4.47	2.25	57.0 0.01	32.6	58.4	500	500	11.13	34.978	4.86	26.754	130.0	0.852
1644P	2.82	34.626	4.39	2.13	58.7	31.4	47.5	600	600	8.67	34.645	5.05	26.913	115.0	0.986
1824P	2.97	34.740	4.70	1.97	53.1	28.3	40.1	700	700	6.41	34.416	5.37	27.060	101.1	1.105
2049P	3.09	34.831	5.15	1.69	42.4	25.0	34.3	800	800	5.05	34.316	5.61	27.149	92.6	1.211
2358P	3.15	34.914	5.62	1.47	31.7	22.0	28.6	1000	1000	3.76	34.276	6.04	27.257	82.4	1.403
2660P	2.99	34.922	5.61	1.40	30.5 0.00	20.6	26.6	1200	1200	3.07	34.337	5.08	27.372	71.4	1.574
3035P	2.74	34.913	5.78	1.38	34.6	20.9	25.1	1500	1500	2.76	34.522	4.45	27.547	54.9	1.789
3406P	1.652	34.810	5.28	1.81	77.1	26.5	24.5	1750	1750	2.91	34.697	4.55	27.674	42.9	1.937
3624P	1.115	34.733	4.98	2.07	106.1	30.2	26.7	2000	2000	3.07	34.815	5.05	27.753	35.4	2.068
3804P	0.840	34.716	5.100	2.16	112.5	31.1	26.3	2250	2250	3.13	34.869	5.48	27.807	30.3	2.188
3842P	0.78	34.715	4.96	2.17	114.5 0.00	31.5	26.0	2500	2500	3.09	34.922	5.74	27.837	27.4	2.304
								2750	2750	2.97	34.924	5.80	27.849	26.2	2.417
								3000	3000	2.78	34.915	5.78	27.860	25.2	2.529
								3250	3250	2.15	34.854	5.52	27.865	24.7	2.634
								3500	3500	1.40	34.775	5.13	27.858	25.5	2.730
								3750	3750	0.92	34.721	4.97	27.848	26.4	2.816

## RV MELVILLE

## CATO EXPEDITION VI

18

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER	DOMINANT WAVES	
35 26.5S		41 29.0W		11/17/72		0349 0559		GMT	4839M		160	12KT	1	180 10	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD
0	18.36	35.949	5.46	0.09	1.4 0.00	0.0	208.6	0	0	18.36	35.949	5.46	25.926	208.6	0.000
41	17.94	35.998	5.53	0.07	1.0 0.00	0.0	195.1	10	10	18.26	35.943	5.48	25.948	206.5	0.021
63	17.34	35.979	5.54	0.10	1.2 0.00	0.0	182.5	20	20	18.16	35.949	5.50	25.978	203.6	0.041
105	17.00	35.958	5.40	0.15	1.3 0.05	0.9	176.3	30	30	18.05	35.966	5.52	26.016	200.0	0.062
125A	16.62 V	35.901 V	5.26V	0.24	1.5 0.02	1.9	173.6	50	50	17.69	35.990	5.53	26.124	189.8	0.101
126	16.77	35.923	5.27	0.23	1.3 0.02	1.8	173.6	75	75	17.20	35.974	5.52	26.232	179.5	0.148
158	16.09	35.786	5.12	0.34	1.5 0.02	3.4	168.5	100	100	17.02	35.961	5.43	26.265	176.4	0.193
203A	15.10	35.642	5.06				157.7	125	125	16.78	35.924	5.28	26.293	173.7	0.238
280A	14.59	35.583	5.31	1.49	2.2 0.02	15.4	151.4	150	150	16.28	35.822	5.15	26.333	169.9	0.282
385A	13.40	35.352	5.11	0.75	3.1 0.01	8.7	144.4	200	200	15.16	35.648	5.06	26.454	158.4	0.367
540A	8.47	34.583	5.20	1.30	7.6 0.01	19.5	116.6	250	250	14.72	35.598	5.21	26.512	152.9	0.448
695A	5.19	34.248	5.97	1.69	11.8	24.2	99.2	300	300	14.45	35.558	5.29	26.539	150.4	0.528
900A	4.09	34.227	5.89	1.96	19.9	27.4	89.2	400	400	12.97	35.272	5.12	26.628	142.0	0.684
1207A	2.95	34.313	5.08	2.24	42.3	32.4	72.2	500	500	9.84	34.765	5.18	26.815	124.3	0.828
1412A	2.68	34.441	4.54	2.25	57.8	33.5	60.3	600	600	6.98	34.411	5.50	26.979	108.7	0.954
1616A	2.82	34.585	4.35	2.23	60.6 0.00	32.1	50.6	700	700	5.14	34.246	5.97	27.083	98.8	1.067
1820A	2.90	34.689	4.48	2.09	59.5	30.1	43.4	800	800	4.38	34.213	5.93	27.143	93.2	1.170
2024A	3.02	34.781	4.86	1.92	52.5	27.3	37.5	1000	1000	3.64	34.244	5.67	27.243	83.9	1.363
2329A	3.19	34.895	5.48	1.51	36.0	21.8	30.4	1200	1200	2.97	34.311	5.10	27.360	72.6	1.535
2736A	2.89	34.90	5.65	1.50	38.7	21.5	27.4	1500	1500	2.72	34.505	4.42	27.537	55.8	1.753
3144A	2.576	34.890	5.69	1.47	44.6 0.00	22.1	25.5	1750	1750	2.87	34.657	4.44	27.644	45.6	1.905
3658A	1.129	34.734	4.96	2.14	109.4	30.6	26.7	2000	2000	3.00	34.771	4.81	27.724	36.1	2.042
4175A	0.354	34.686	5.11	2.27	128.8	32.6	25.8	2250	2250	3.16	34.871	5.34	27.789	31.9	2.168
4489A	0.209	34.671	5.18	2.28	130.1	32.4	26.1	2500	2500	3.10	34.907	5.55	27.824	28.6	2.287
4751A	0.163							2750	2750	2.89	34.900	5.65	27.838	27.3	2.402
4804A	0.162	34.663 E	5.18	2.29	132.2 0.00	33.1	26.5	3000	3000	2.73	34.897	5.68	27.850	25.9	2.516
								3250	3250	2.30	34.857	5.54	27.855	25.7	2.625
								3500	3500	1.60	34.781	5.18	27.848	26.2	2.726
								3750	3750	0.94	34.721	4.99	27.846	26.5	2.816
								4000	4000	0.54	34.696	5.06	27.851	26.1	2.895
								4250	4250	0.30	34.682	5.13	27.853	25.8	2.965
								4500	4500	0.21	34.671	5.18	27.850	26.2	3.032
								4750	4750	0.16	34.665	5.18	27.847	26.4	3.098

L) MEAN VALUE OF 34.655 AND 34.671 PPT.



17 STD						CATO EXPEDITION VI						18 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
13 10.2S	40 44.5W	11/16/72	0902 GMT			35 26.5S	41 29.0W	11/17/72	0215 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	18.57	36.02	25.927	208.4	0.000	0	18.47	35.97	25.914	209.7	0.000	0	18.47	35.97	25.914	209.7	0.000
10	18.59	36.03	25.930	208.2	0.021	10	18.49	35.98	25.917	209.4	0.021	10	18.49	35.98	25.917	209.4	0.021
20	18.33	36.08	26.021	199.5	0.041	20	18.48	35.96	25.919	209.2	0.042	20	18.48	35.96	25.919	209.2	0.042
30	18.32	36.08	26.036	198.1	0.061	30	18.48	35.96	25.919	209.2	0.063	30	18.48	35.96	25.919	209.2	0.063
40	18.30	36.09	26.048	196.9	0.081	40	18.11	36.02	26.042	197.5	0.083	40	18.11	36.02	26.042	197.5	0.083
50	18.30	36.09	26.048	196.9	0.101	50	17.70	36.00	26.129	189.3	0.103	50	17.70	36.00	26.129	189.3	0.103
60	18.27	36.09	26.056	196.2	0.121	60	17.38	35.98	26.191	183.4	0.122	60	17.38	35.98	26.191	183.4	0.122
70	17.74	36.01	26.126	189.5	0.140	70	17.27	35.97	26.210	181.6	0.140	70	17.27	35.97	26.210	181.6	0.140
80	17.74	36.06	26.165	185.9	0.159	80	17.20	35.97	26.227	179.9	0.159	80	17.20	35.97	26.227	179.9	0.159
90	17.21	35.93	26.194	183.1	0.178	90	17.13	35.99	26.259	176.9	0.177	90	17.13	35.99	26.259	176.9	0.177
100	16.98	35.92	26.242	178.6	0.197	100	17.09	35.99	26.269	176.0	0.195	100	17.09	35.99	26.269	176.0	0.195
125	16.72	35.92	26.304	172.7	0.241	125	16.76	35.93	26.302	172.9	0.239	125	16.76	35.93	26.302	172.9	0.239
150	16.37	35.85	26.332	170.0	0.285	150	16.22	35.79	26.321	171.0	0.283	150	16.22	35.79	26.321	171.0	0.283
200	15.84	35.77	26.393	164.2	0.372	200	15.17	35.66	26.460	157.9	0.368	200	15.17	35.66	26.460	157.9	0.368
250	14.91	35.60	26.471	156.8	0.455	250	14.95	35.70	26.540	150.3	0.449	250	14.95	35.70	26.540	150.3	0.449
300	14.65	35.58	26.513	152.9	0.537	300	14.66	35.62	26.542	150.1	0.528	300	14.66	35.62	26.542	150.1	0.528
350	14.11	35.48	26.552	149.1	0.617	350	14.35	35.55	26.546	149.7	0.608	350	14.35	35.55	26.546	149.7	0.608
400	13.41	35.35	26.598	144.8	0.696	400	13.07	35.25	26.590	145.5	0.687	400	13.07	35.25	26.590	145.5	0.687
450	12.37	35.16	26.660	138.9	0.773	450	11.42	35.00	26.717	133.5	0.762	450	11.42	35.00	26.717	133.5	0.762
500	11.33	34.99	26.726	132.7	0.846	500	9.80	34.74	26.803	125.4	0.832	500	9.80	34.74	26.803	125.4	0.832
550	9.89	34.61	26.842	121.7	0.916	550	7.86	34.49	26.915	114.6	0.897	550	7.86	34.49	26.915	114.6	0.897
600	8.53	34.62	26.915	114.7	0.981	600	6.59	34.36	26.992	107.5	0.957	600	6.59	34.36	26.992	107.5	0.957
650	7.24	34.48	26.997	107.0	1.042	650	5.67	34.28	27.047	102.2	1.014	650	5.67	34.28	27.047	102.2	1.014
700	6.09	34.34	27.042	102.8	1.099	700	5.09	34.23	27.077	99.4	1.068	700	5.09	34.23	27.077	99.4	1.068
750	5.48	34.30	27.086	98.6	1.154	750	4.79	34.23	27.111	96.2	1.121	750	4.79	34.23	27.111	96.2	1.121
800	5.04	34.25	27.099	97.4	1.208	800	4.50	34.22	27.136	93.9	1.173	800	4.50	34.22	27.136	93.9	1.173
850	4.67	34.26	27.144	92.6	1.259	850	4.23	34.22	27.165	91.1	1.223	850	4.23	34.22	27.165	91.1	1.223
900	4.33	34.25	27.178	89.9	1.309	900	4.05	34.21	27.176	90.1	1.272	900	4.05	34.21	27.176	90.1	1.272
950	4.03	34.25	27.209	86.9	1.358	950	3.82	34.22	27.207	87.1	1.320	950	3.82	34.22	27.207	87.1	1.320
1000	3.84	34.26	27.237	84.3	1.405	1000	3.63	34.23	27.234	84.6	1.367	1000	3.63	34.23	27.234	84.6	1.367
1100	3.41	34.30	27.311	77.3	1.494	1100	3.23	34.27	27.304	77.9	1.456	1100	3.23	34.27	27.304	77.9	1.456
1200	3.08	34.33	27.366	72.1	1.577	1200	2.99	34.30	27.350	73.5	1.540	1200	2.99	34.30	27.350	73.5	1.540
1300	2.85	34.38	27.426	66.3	1.654	1300	2.77	34.36	27.418	67.2	1.618	1300	2.77	34.36	27.418	67.2	1.618
1400	2.79	34.45	27.488	60.5	1.726	1400	2.70	34.42	27.472	62.0	1.690	1400	2.70	34.42	27.472	62.0	1.690
1500	2.80	34.53	27.550	54.6	1.792	1500	2.73	34.50	27.533	56.2	1.758	1500	2.73	34.50	27.533	56.2	1.758
1600	2.83	34.59	27.596	50.3	1.854	1600	2.63	34.58	27.588	51.0	1.821	1600	2.63	34.58	27.588	51.0	1.821
1700	2.84	34.67	27.658	44.3	1.912	1700	2.87	34.63	27.624	47.6	1.881	1700	2.87	34.63	27.624	47.6	1.881
1800	2.92	34.72	27.691	41.2	1.967	1800	2.90	34.68	27.661	44.1	1.939	1800	2.90	34.68	27.661	44.1	1.939
1900	3.00	34.77	27.723	38.1	2.019	1900	2.95	34.73	27.696	40.7	1.994	1900	2.95	34.73	27.696	40.7	1.994
2000	3.05	34.82	27.759	34.8	2.069	2000	3.04	34.78	27.728	37.7	2.046	2000	3.04	34.78	27.728	37.7	2.046
2100	3.10	34.86	27.786	32.2	2.117	2100	3.04	34.82	27.760	34.7	2.097	2100	3.04	34.82	27.760	34.7	2.097
2200	3.11	34.88	27.801	30.6	2.165	2200	3.08	34.86	27.788	32.1	2.146	2200	3.08	34.86	27.788	32.1	2.146
2300	3.13	34.91	27.823	28.7	2.211	2300	3.10	34.88	27.802	30.7	2.194	2300	3.10	34.88	27.802	30.7	2.194
2400	3.15	34.93	27.837	27.4	2.256	2400	3.14	34.90	27.814	29.6	2.241	2400	3.14	34.90	27.814	29.6	2.241
2500	3.14	34.94	27.846	26.6	2.301	2500	3.11	34.91	27.825	28.6	2.288	2500	3.11	34.91	27.825	28.6	2.288
2600	3.02	34.93	27.849	26.2	2.346	2600	2.99	34.91	27.836	27.5	2.334	2600	2.99	34.91	27.836	27.5	2.334
2700	2.97	34.93	27.854	25.0	2.391	2700	2.87	34.90	27.839	27.2	2.379	2700	2.87	34.90	27.839	27.2	2.379
2800	2.93	34.94	27.865	24.7	2.435	2800	2.86	34.91	27.848	26.4	2.425	2800	2.86	34.91	27.848	26.4	2.425
2900	2.82	34.92	27.859	25.3	2.479	2900	2.81	34.91	27.852	25.9	2.469	2900	2.81	34.91	27.852	25.9	2.469
3000	2.77	34.92	27.864	24.8	2.523	3000	2.75	34.91	27.858	25.4	2.514	3000	2.75	34.91	27.858	25.4	2.514
3100	2.65	34.91	27.867	24.6	2.567	3100	2.63	34.91	27.868	24.4	2.558	3100	2.63	34.91	27.868	24.4	2.558
3200	2.52	34.90	27.870	24.3	2.610	3200	2.53	34.90	27.869	24.4	2.601	3200	2.53	34.90	27.869	24.4	2.601
3300	2.24	34.86	27.862	25.1	2.653	3300	2.22	34.84	27.847	26.4	2.644	3300	2.22	34.84	27.847	26.4	2.644
3400	1.75	34.80	27.853	25.9	2.693	3400	1.85	34.80	27.845	26.6	2.686	3400	1.85	34.80	27.845	26.6	2.686
3500	1.49	34.77	27.848	26.4	2.732	3500	1.64	34.80	27.861	25.1	2.725	3500	1.64	34.80	27.861	25.1	2.725
3600	1.23	34.76	27.858	26.4	2.768	3600	1.32	34.75	27.844	26.7	2.762	3600	1.32	34.75	27.844	26.7	2.762
3700	1.02	34.72	27.841	27.1	2.802	3700	1.11	34.72	27.835	27.6	2.799	3700	1.11	34.72	27.835	27.6	2.799
3800	0.85	34.71	27.844	26.8	2.836	3800	0.93	34.72	27.847	26.5	2.833	3800	0.93	34.72	27.847	26.5	2.833
3900	0.67	34.69	27.839	27.2	2.869	3900	0.76	34.71	27.849	26.2	2.866	3900	0.76	34.71	27.849	26.2	2.866
4000	0.45	34.68	27.844	26.8	2.899	4000	0.57	34.69	27.845	26.7	2.897	4000	0.57	34.69	27.845	26.7	2.897
4100	0.31	34.67	27.844	26.8	2.928	4100	0.44	34.68	27.845	26.7	2.927	4100	0.44	34.68	27.845	26.7	2.927
4200	0.21	34.66	27.841	27.0	2.955	4200	0.33	34.68	27.851	26.1	2.955	4200	0.33	34.68	27.851	26.1	2.955
4300	0.15	34.65	27.837	27.4	2.982	4300	0.28	34.68	27.854	25.8	2.982	4300	0.28	34.68	27.854	25.8	2.982
4400	0.11	34.65	27.839	27.2	3.009	4400	0.23	34.67	27.848	26.3	3.009	4400	0.23	34.67	27.848	26.3	3.009
4500	0.08	34.64	27.832	27.8	3.035	4500	0.19	34.67	27.851	26.1	3.036	4500	0.19	34.67	27.851	26.1	3.036
4600	0.06	34.64	27.833	27.8	3.061	4600	0.19	34.67	27.851	26.1	3.062	4600	0.19	34.67	27.		

## RV MELVILLE

## CATO EXPEDITION VI

19

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 52.9S		46 37.3W		11/18/72		0612 0921		GMT	4207M	040	30KT	6	040 12		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SI0T	DT	DD
0	19.23	36.085	5.35	0.11	1.1	0.00	0.0	219.8	0	19.23	36.085	5.35	25.808	219.8	0.000
41	17.44	35.798	5.70	0.15	1.4	0.00	0.0	198.0	10	18.71	35.968	5.44	25.853	215.5	0.022
62	16.87	35.833	5.86	0.14	1.4	0.00	0.0	182.4	20	18.24	35.883	5.53	25.905	210.6	0.043
104	15.20	35.656	5.19	0.43	1.8	0.07	4.7	158.8	30	17.83	35.826	5.61	25.964	204.9	0.064
109A	15.07	V 35.635	V 5.22V	0.44	2.0		4.8		50	17.19	35.810	5.79	26.107	191.3	0.104
125	15.03	35.629	5.27	0.43	2.0	0.04	4.8	157.2	75	16.50	35.783	5.66	26.299	173.1	0.150
155	14.94	35.662	5.45	0.42	1.8	0.02	4.5	152.9	100	15.54	35.675	5.26	26.435	160.2	0.192
187A	14.80	35.650	5.47	0.43	1.8		4.4	150.8	125	15.03	35.629	5.27	26.467	157.2	0.233
264A	14.55	35.602	5.56	0.42	1.9		5.1	149.2	150	14.95	35.654	5.42	26.505	153.6	0.273
367A	12.64	35.212	4.99	0.88	3.6		4.7U	140.1	200	14.79	35.650	5.49	26.537	150.5	0.351
522A	8.37	34.577	5.37	1.38	7.6		4.9U	115.6	250	14.63	35.619	5.54	26.548	149.5	0.430
677A	5.37	34.275	5.84	1.61	11.7		4.5U	99.2	300	14.03	35.489	5.37	26.577	146.8	0.508
3226P	2.30	34.850	5.35	1.70	58.9		24.8	26.3	400	11.75	35.057	5.07	26.700	135.1	0.658
3738P	1.000	34.722	4.93	2.21	111.4		31.7	26.8	500	8.99	34.653	5.32	26.868	119.2	0.795
4251P	0.33	34.682	5.10	2.26	126.4		33.0	26.0	600	6.76	34.400	5.60	27.000	106.7	0.918
4561P	0.196	34.676	5.17	2.31	128.6		33.0	25.7	3250	2.23	34.843	5.32	27.849	26.3	
4820P	0.159	34.673	5.17	2.32	129.9		33.2	25.7	3500	1.58	34.776	5.10	27.846	26.6	
4872P	0.164	34.670	5.20	2.28	129.4		32.9	26.0	3750	0.98	34.721	4.93	27.844	26.8	
									4000	0.58	34.696	4.98	27.848	26.4	
									4250	0.35	34.683	5.10	27.852	26.0	
									4500	0.21	34.677	5.16	27.855	25.7	
									4750	0.17	34.675	5.17	27.855	25.7	

## RV MELVILLE

## CATO EXPEDITION VI

20

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 11.9S		47 07.3W		11/18/72		1944 2317		GMT	4821M	280	29KT	2	280 10 7		
Z	T	S	U2	P04	SI03	N02	N03	DT	Z	T	S	U2	SI0T	DT	DD
0	19.27	35.898	5.33	0.08	1.3	0.00	0.1	234.3	0	19.27	35.898	5.33	25.655	234.3	0.000
42	19.25	35.908	5.33	0.08	0.8	0.00	0.0	233.1	10	19.27	35.899	5.33	25.658	234.0	0.023
47A	18.95	36.035	5.26	0.09	1.4	0.01	0.1	216.6	20	19.26	35.902	5.33	25.661	233.7	0.047
63	18.84	36.125	5.35	0.07	1.0	0.00	0.0	207.4	30	19.26	35.904	5.33	25.664	233.4	0.070
98A	18.07	36.105	5.12	0.18	0.8	0.05	0.9	190.4	50	18.93	36.050	5.26	25.860	214.8	0.115
105	18.04	36.094	5.11	0.16	1.3	0.03	1.1	190.5	75	18.56	36.136	5.29	26.020	199.6	0.168
127	17.89	36.093	5.07	0.17	1.0	0.01	1.3	187.0	100	18.06	36.100	5.12	26.117	190.4	0.217
158	17.57	36.029	5.09	0.19	1.0	0.01	1.8	184.2	125	17.91	36.091	5.07	26.148	187.4	0.266
176A	17.67	36.082	5.12	0.21	1.0	0.01	1.4	182.7	150	17.63	36.038	5.08	26.176	184.8	0.313
279A	15.35	35.649	4.96	0.48	2.1	0.01	4.9	162.8	200	17.31	36.024	5.10	26.242	178.5	0.407
435A	13.48	35.353	4.88	0.70	3.1	0.01	9.0	145.9	250	16.21	35.816	5.03	26.345	168.8	0.498
589A	9.97	34.827	4.72	1.22	7.2	0.01	17.3	121.7	300	15.09	35.607	4.95	26.438	160.0	0.584
795A	6.00	34.383	5.29	1.79	14.1		24.8	98.5	400	13.89	35.417	4.89	26.551	149.3	0.749
1103A	3.68	34.283	5.26	2.10	29.5		50.2	81.0	500	12.07	35.417	4.79	26.693	135.8	0.904
1307A	3.06	34.375	4.75	2.26	45.1		33.1	68.5	600	9.72	34.793	4.75	26.857	120.2	1.044
1511A	2.94	34.511	4.39	2.27	54.5	0.01	33.1	57.2	700	7.66	34.544	5.00	26.987	108.0	1.170
1715A	3.26	34.689	4.53	2.04	47.0		29.2	46.6	800	5.94	34.379	5.29	27.091	96.1	1.285
2022A	3.57	34.864	5.16	1.68	32.4		24.2	36.2	1000	4.12	34.277	5.27	27.221	85.8	1.488
2327A	3.26	34.890	5.34	1.58	35.8		22.9	31.4	1200	3.31	34.318	5.03	27.334	75.0	1.667
2736A	2.84	34.895	5.51	1.54	41.2		22.5	27.3	1500	2.95	34.505	4.40	27.517	57.8	1.894
3145A	2.182	34.828	5.18	1.76	66.5	0.00	25.9	27.0	1750	3.42	34.716	4.60	27.650	45.1	2.052
3657A	1.116	34.751	4.84	2.17	110.5		31.2	26.8	2000	3.56	34.856	5.11	27.738	36.8	2.191
4174A	0.34	34.689	5.06	2.23	125.7		32.1	25.5	2250	3.37	34.890	5.32	27.785	32.3	2.321
4485A	0.185	34.680	5.16	2.23	130.2		33.2	25.3	2500	3.10	34.898	5.45	27.817	29.3	2.442
4747A	0.144	34.672	5.16	2.30	132.2		32.7	25.7	2750	2.82	34.892	5.50	27.838	27.3	2.558
4800A	0.160	34.678	5.16	2.27	130.9	0.00	33.1	25.4	3000	2.44	34.853	5.32	27.840	27.1	2.669
									3250	1.96	34.806	5.08	27.841	27.0	2.776
									3500	1.44	34.758	4.91	27.842	26.9	2.874
									3750	0.94	34.720	4.86	27.846	26.6	2.963
									4000	0.55	34.699	4.96	27.853	25.9	3.042
									4250	0.29	34.686	5.09	27.858	25.4	3.112
									4500	0.18	34.680	5.16	27.859	25.4	3.177
									4750	0.14	34.667	5.16	27.850	25.7	3.240

19 STD						CATO EXPEDITION VI						20 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
35 52.9S	46 37.3W	11/18/72	0425 GMT			35 11.9S	47 07.3W	11/18/72	1644 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.34	36.10	25.791	221.4	0.000	0	19.26	35.93	25.682	231.7	0.000	0	19.26	35.93	25.682	231.7	0.000
10	19.36	36.11	25.793	221.2	0.022	10	19.28	35.93	25.685	231.5	0.023	10	19.28	35.93	25.685	231.5	0.023
20	19.17	36.09	25.827	217.9	0.044	20	19.25	35.93	25.685	231.5	0.046	20	19.25	35.93	25.685	231.5	0.046
30	17.86	35.76	25.906	210.5	0.066	30	19.28	35.93	25.677	232.2	0.070	30	19.28	35.93	25.677	232.2	0.070
40	17.53	35.81	26.025	199.2	0.086	40	19.24	35.93	25.687	231.3	0.093	40	19.24	35.93	25.687	231.3	0.093
50	17.18	35.82	26.117	190.4	0.106	50	18.83	36.12	25.937	207.5	0.137	50	18.83	36.12	25.937	207.5	0.137
60	17.06	35.81	26.138	188.4	0.125	60	18.75	36.10	25.942	207.0	0.158	60	18.75	36.10	25.942	207.0	0.158
70	16.65	35.89	26.297	173.3	0.143	70	18.39	36.11	26.041	197.6	0.179	70	18.39	36.11	26.041	197.6	0.179
80	16.60	35.95	26.355	167.8	0.161	80	18.16	36.10	26.091	192.9	0.198	80	18.16	36.10	26.091	192.9	0.198
90	16.51	35.94	26.368	166.5	0.178	90	18.10	36.09	26.098	192.2	0.218	90	18.10	36.09	26.098	192.2	0.218
100	15.81	35.76	26.392	164.3	0.194	100	17.86	36.10	26.161	186.3	0.266	100	17.86	36.10	26.161	186.3	0.266
150	14.96	35.69	26.530	151.3	0.275	250A	15.79	35.72	26.366	166.7	0.495	250A	15.79	35.72	26.366	166.7	0.495
200	14.79	35.67	26.552	149.2	0.353	300A	15.04	35.62	26.458	158.0	0.560	300A	15.04	35.62	26.458	158.0	0.560
250	14.56	35.64	26.579	146.6	0.430	350A	14.40	35.53	26.528	151.4	0.662	350A	14.40	35.53	26.528	151.4	0.662
300	14.31	35.59	26.594	145.1	0.507	400A	13.87	35.43	26.564	148.0	0.743	400A	13.87	35.43	26.564	148.0	0.743
350	13.21	35.33	26.624	142.3	0.584	450A	12.96	35.27	26.628	141.9	0.821	450A	12.96	35.27	26.628	141.9	0.821
400	11.95	35.11	26.702	134.9	0.658	600A	9.74	34.78	26.844	121.5	1.037	600A	9.74	34.78	26.844	121.5	1.037
450	10.55	34.88	26.762	127.4	0.749	650A	8.25	34.59	26.935	112.9	1.102	650A	8.25	34.59	26.935	112.9	1.102
500	9.07	34.68	26.877	118.4	0.795	700A	7.34	34.51	27.006	106.1	1.162	700A	7.34	34.51	27.006	106.1	1.162
550	7.42	34.47	26.964	110.2	0.857	750A	6.45	34.41	27.050	102.0	1.220	750A	6.45	34.41	27.050	102.0	1.220
600	6.43	34.39	27.000	103.6	0.915	950A	4.64	34.29	27.176	90.1	1.432	950A	4.64	34.29	27.176	90.1	1.432
650	5.77	34.30	27.051	101.9	0.971	1000A	4.28	34.29	27.215	86.4	1.481	1000A	4.28	34.29	27.215	86.4	1.481
700	5.00	34.24	27.095	97.7	1.025	1100A	3.71	34.29	27.274	80.8	1.574	1100A	3.71	34.29	27.274	80.8	1.574
750	4.90	34.26	27.123	95.1	1.077	1200A	3.40	34.31	27.320	76.4	1.661	1200A	3.40	34.31	27.320	76.4	1.661
800	4.53	34.24	27.148	92.7	1.128	1300A	3.20	34.36	27.379	70.8	1.744	1300A	3.20	34.36	27.379	70.8	1.744
850	4.23	34.22	27.165	91.1	1.178	1400A	3.01	34.42	27.444	64.8	1.821	1400A	3.01	34.42	27.444	64.8	1.821
900	3.96	34.22	27.193	88.5	1.226	1700A	3.17	34.67	27.628	47.2	2.021	1700A	3.17	34.67	27.628	47.2	2.021
950	3.74	34.23	27.223	85.6	1.274	1800A	3.40	34.75	27.670	43.2	2.080	1800A	3.40	34.75	27.670	43.2	2.080
1000	3.56	34.24	27.249	83.1	1.320	1900A	3.48	34.81	27.710	39.5	2.136	1900A	3.48	34.81	27.710	39.5	2.136
1100	3.40	34.28	27.296	78.7	1.409	2000A	3.50	34.85	27.739	36.6	2.190	2000A	3.50	34.85	27.739	36.6	2.190
1200	3.01	34.30	27.348	73.7	1.493	2200A	3.51	34.91	27.786	32.2	2.293	2200A	3.51	34.91	27.786	32.2	2.293
1300	2.68	34.37	27.416	67.3	1.571	2300A	3.29	34.90	27.800	30.9	2.342	2300A	3.29	34.90	27.800	30.9	2.342
1400	2.72	34.40	27.454	63.7	1.645	2500A	3.22	34.92	27.822	28.8	2.439	2500A	3.22	34.92	27.822	28.8	2.439
1500	2.69	34.48	27.520	57.4	1.714	2600A	3.20	34.94	27.840	27.1	2.486	2600A	3.20	34.94	27.840	27.1	2.486
1600	2.70	34.53	27.559	53.7	1.779	2700A	3.03	34.92	27.840	27.1	2.532	2700A	3.03	34.92	27.840	27.1	2.532
1700	2.80	34.59	27.598	50.0	1.841	2800A	2.81	34.90	27.844	26.7	2.578	2800A	2.81	34.90	27.844	26.7	2.578
1800	2.73	34.63	27.636	46.4	1.900	3200A	2.12	34.82	27.840	27.2	2.753	3200A	2.12	34.82	27.840	27.2	2.753
1900	3.03	34.73	27.689	41.4	1.956	3300A	1.82	34.60	27.847	26.4	2.794	3300A	1.82	34.60	27.847	26.4	2.794
2000	3.00	34.76	27.716	38.9	2.010	3400A	1.54	34.76	27.836	27.5	2.833	3400A	1.54	34.76	27.836	27.5	2.833
2100	2.99	34.78	27.732	37.3	2.062	3500A	1.34	34.75	27.843	26.9	2.871	3500A	1.34	34.75	27.843	26.9	2.871
2200	3.00	34.81	27.755	35.1	2.113	3600A	1.22	34.75	27.851	26.1	2.907	3600A	1.22	34.75	27.851	26.1	2.907
2300	2.96	34.83	27.775	33.3	2.163	3700A	1.02	34.73	27.849	26.3	2.942	3700A	1.02	34.73	27.849	26.3	2.942
2400	2.98	34.85	27.789	31.9	2.212	3800A	0.86	34.71	27.843	26.8	2.975	3800A	0.86	34.71	27.843	26.8	2.975
2500	2.96	34.87	27.807	30.3	2.260	4100A	0.44	34.69	27.853	25.9	3.067	4100A	0.44	34.69	27.853	25.9	3.067
2600	2.98	34.90	27.829	28.2	2.307	4200A	0.35	34.69	27.858	25.5	3.095	4200A	0.35	34.69	27.858	25.5	3.095
2700	2.81	34.88	27.828	28.2	2.353	4300A	0.25	34.68	27.855	25.7	3.122	4300A	0.25	34.68	27.855	25.7	3.122
2800	2.90	34.92	27.852	26.0	2.398	4400A	0.20	34.68	27.858	25.4	3.148	4400A	0.20	34.68	27.858	25.4	3.148
2900	2.72	34.89	27.845	26.7	2.443	4500A	0.16	34.68	27.860	25.2	3.173	4500A	0.16	34.68	27.860	25.2	3.173
3000	2.59	34.87	27.840	27.1	2.488	4600A	0.14	34.67	27.853	25.9	3.198	4600A	0.14	34.67	27.853	25.9	3.198
3100	2.52	34.88	27.854	25.6	2.532	4800A	0.15	34.67	27.853	25.9	3.249	4800A	0.15	34.67	27.853	25.9	3.249
3200	2.31	34.86	27.856	25.6	2.575												
3300	2.16	34.85	27.860	25.2	2.617												
3400	1.77	34.80	27.851	26.1	2.658												
3500	1.54	34.78	27.852	26.0	2.696												
3600	1.24	34.74	27.842	27.0	2.733												
3700	1.07	34.73	27.845	26.6	2.769												
3800	0.93	34.72	27.847	26.5	2.803												
3900	0.74	34.70	27.842	26.9	2.836												
4000	0.56	34.69	27.846	26.6	2.867												
4100	0.45	34.69	27.852	26.0	2.896												
4200	0.36	34.68	27.849	26.3	2.925												
4300	0.29	34.68	27.853	25.9	2.952												
4400	0.23	34.68	27.856	25.6	2.978												
4500	0.20	34.67	27.850	26.2	3.005												
4600	0.18	34.67	27.851	26.1	3.031												
4700	0.17	34.67	27.852	26.0	3.057												
4800	0.15	34.67	27.853	25.9	3.082												
4900	0.16	34.67	27.852	26.0	3.108												

## RV MELVILLE

## CATO EXPEDITION VI

21

LATITUDE 34 37.5S	LONGITUDE 47 59.0W	MO/DAY/YR 11/19/72	MESSENGER 1007 1229	TIME GMT	BOTTOM 4495M	WIND 180	SPEED 21KT	WEATHER 1	DOMINANT WAVES 220 10 6	Z	T	S	Q2	SIGT	DT	DD
0	19.29	35.825	5.32	0.14	1.6	0.00	0.0	240.1	0	19.29	35.825	5.32	25.594	240.1	0.000	
42	19.28	35.826	5.33	0.12	1.6	0.00	0.0	239.8	10	19.29	35.824	5.32	25.595	240.0	0.024	
64	18.82	36.051	5.39	0.10	1.0	0.00	0.0	212.2	20	19.29	35.824	5.32	25.596	239.9	0.048	
105	18.19	36.126	5.17	0.14	1.0	0.05	0.7	191.7	30	19.28	35.825	5.33	25.597	239.9	0.072	
117A	18.12	36.120	5.12	0.18	1.0	0.03	0.8	190.8	50	19.15	35.905	5.36	25.698	250.2	0.119	
126	18.02	36.119	5.16	0.16	1.0	0.02	1.0	188.2	75	18.61	36.099	5.35	25.979	205.5	0.174	
158	17.93	36.129	5.20	0.13	1.0	0.01	1.1	185.3	100	18.24	36.131	5.21	26.095	192.4	0.224	
194A	17.74	36.106	5.17	0.20	1.2	0.01	1.2	182.5	125	18.03	36.117	5.15	26.138	188.4	0.273	
271A	15.88	35.704	5.06	0.39	1.8	0.01	4.4	169.9	150	17.94	36.125	5.19	26.167	185.6	0.321	
374A	14.71	35.553	4.89	0.53	2.4	0.01	6.5	156.1	200	17.62	36.076	5.16	26.209	181.7	0.416	
529A	12.32	35.159	4.80	0.90	4.1	0.00	12.0	138.1	250	16.44	35.821	5.09	26.293	173.7	0.509	
683A	8.95	34.689	4.87	1.26	8.8		19.1	115.6	300	15.49	35.645	5.01	26.377	165.7	0.598	
990A	4.27	34.226	5.91	1.82	17.5		27.1	91.1	400	14.37	35.498	4.67	26.510	155.1	0.768	
1596A	3.04	34.381	4.71	2.00	47.1		32.7	67.9	500	12.85	35.243	4.82	26.633	141.5	0.928	
1599A	2.79	34.487	4.42	2.26	58.8		33.6	57.7	600	10.78	34.928	4.83	26.780	127.6	1.076	
2005A	3.13	34.750	4.71	1.91	50.5		28.0	40.8	700	8.59	34.646	4.93	26.925	113.8	1.210	
2207A	3.16	34.832	5.02	1.72	44.9	0.00	25.5	34.9	800	6.80	34.439	5.29	27.025	104.3	1.331	
2510A	3.34	34.927	5.70	1.36	28.8		20.9	29.3	1000	4.24	34.232	5.89	27.172	90.4	1.547	
2813A	3.14	34.936	5.92	1.34	28.5		20.7	26.9	1200	3.63	34.316	5.42	27.302	78.2	1.733	
3217A	2.66	34.917	5.76	1.40	39.5		21.5	24.6	1500	2.88	34.434	4.53	27.466	62.5	1.972	
3621A	0.920	34.737	4.90	2.12	115.1		31.5	25.7	1750	2.87	34.590	4.53	27.590	50.8	2.140	
3924A	0.335	34.678	5.05	2.24	128.0	0.00	32.9	25.8	2000	3.12	34.747	4.71	27.694	41.0	2.286	
4228A	0.171	34.673	5.14	2.27	129.3		32.7	25.4	2250	3.19	34.848	5.12	27.768	33.9	2.419	
4431A	0.119	34.671	5.18	2.27	132.0		32.8	25.7	2500	3.34	34.923	5.68	27.815	29.5	2.543	
									2750	3.20	34.939	5.91	27.839	27.2	2.664	
									3000	3.01	34.935	5.85	27.854	25.5	2.782	
									3250	2.52	34.894	5.68	27.866	24.7	2.895	
									3500	1.45	34.780	5.13	27.859	25.3	2.994	
									3750	0.61	34.707	4.96	27.856	25.6	3.076	
									4000	0.27	34.684	5.08	27.857	25.5	3.146	
									4250	0.16	34.678	5.15	27.858	25.4	3.210	
									4500	0.10	34.669	5.19	27.855	25.7	3.273	

## RV MELVILLE

## CATO EXPEDITION VI

22

LATITUDE 34 11.4S	LONGITUDE 48 32.0W	MO/DAY/YR 11/19/72	MESSENGER 2123 2310	TIME GMT	BOTTOM 3571M	WIND 220	SPEED 16KT	WEATHER 1	DOMINANT WAVES 220 5 5	Z	T	S	Q2	SIGT	DT	DD
0	19.19	35.935	5.15	0.10	1.5	0.01	0.0	229.7	0	19.19	35.935	5.15	25.704	229.7	0.000	
42	18.98	35.935	5.35	0.10	1.5	0.00	0.0	224.5	10	19.14	35.934	5.20	25.717	228.4	0.023	
63	18.08	36.000	5.27	0.13	1.5	0.06	0.1	198.2	20	19.09	35.934	5.25	25.730	227.2	0.046	
104A	17.40	35.985	5.15	0.18	1.6	0.04	1.3		30	19.04	35.934	5.29	25.742	226.0	0.069	
105	17.77	36.101	4.88	0.19	1.3	0.02	1.4	183.6	50	18.64	35.956	5.33	25.861	214.7	0.113	
126	17.14	35.945	4.99	0.24	1.6	0.02	2.0	180.4	75	17.95	36.015	5.13	26.079	194.1	0.165	
158	16.54	35.834	5.00	0.31	1.8	0.01	2.8	174.9	100	17.79	36.081	4.91	26.170	185.3	0.213	
207A	15.61	35.665	5.07	0.40	1.9	0.01	4.2	166.9	125	17.17	35.952	4.98	26.221	180.5	0.259	
311A	14.87	35.618	5.17	0.44	2.2	0.01	5.4	154.6	150	16.67	35.854	5.00	26.265	176.3	0.305	
414A	13.40	35.340	5.02	0.76	3.6		9.4	145.3	200	15.73	35.685	5.06	26.354	168.0	0.394	
518A	11.54	35.036	4.82	0.96	5.7	0.01	13.6	133.0	250	15.25	35.635	5.13	26.424	161.2	0.480	
621A	8.91	34.692	4.60	1.05	9.3		19.9	115.1	300	14.93	35.619	5.17	26.483	155.7	0.563	
826A	5.17	34.295	5.64	1.79	15.3		25.5	95.4	400	13.63	35.384	5.05	26.579	146.6	0.725	
982A	4.15	34.276	5.38	1.99	24.3		29.4	86.1	500	11.90	35.091	4.65	26.697	135.4	0.877	
1187A	3.55	34.307	5.12	2.12	36.6	0.00	31.7	76.2	600	9.46	34.756	4.80	26.873	118.7	1.017	
1591A	2.85	34.409	4.61	2.25	51.6	0.01	32.9	64.1	700	7.19	34.488	5.13	27.010	105.7	1.141	
1597A	3.08	34.584	4.43	2.06	53.5	0.00	31.4	52.9	800	5.51	34.326	5.54	27.102	97.1	1.253	
1802A	3.41	34.749	4.69	1.92	43.0		28.0	43.4	1000	4.06	34.277	5.36	27.227	85.2	1.454	
2007A	3.49	34.838	5.01	1.66	36.9		24.6	37.4	1200	3.30	34.312	5.09	27.330	75.4	1.632	
2212A	3.52	34.900	5.17	1.51	30.3		22.9	33.9	1500	2.92	34.498	4.51	27.514	58.0	1.860	
2417A	3.442	34.920	5.57	1.40	27.0	0.00	21.4	30.8	1750	3.33	34.712	4.60	27.645	45.6	2.018	
2623A	3.29	34.942	5.78	1.34	27.4		21.0	27.8	2000	3.49	34.836	5.00	27.730	37.6	2.159	
2881A	2.980	34.926	5.76	1.40	32.6		20.9	26.2	2250	3.51	34.904	5.24	27.782	32.6	2.290	
3138A	2.235	34.850	5.47	1.60	56.8		23.8	25.8	2500	3.39	34.929	5.68	27.814	29.5	2.416	
3449A	0.968	34.721	4.74	2.07	114.3		31.9	26.7	2750	3.17	34.940	5.77	27.843	26.8	2.536	
3553A	0.563	34.701	4.78	2.22	123.7	0.00	31.9	25.8	3000	2.68	34.894	5.66	27.852	26.0	2.651	
									3250	1.80	34.862	5.16	27.851	26.1	2.756	
									3500	0.77	34.713	4.76	27.851	26.3	2.844	



21 STD						CATO EXPEDITION VI						22 STD					
LATITUDE	LONGITUDE	NO/DAY/YR	START TIME			LATITUDE	LONGITUDE	NO/DAY/YR	START TIME			LATITUDE	LONGITUDE	NO/DAY/YR	START TIME		
34 37.5S	47 59.0W	11/19/72	0829 GMT			34 11.4S	48 32.0W	11/19/72	2008 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.31	35.83	25.593	240.2	0.000	0	19.23	35.90	25.667	233.2	0.000	0	19.23	35.90	25.667	233.2	0.000
10	19.31	35.83	25.593	240.2	0.024	10	19.25	35.92	25.677	232.2	0.023	10	19.25	35.92	25.677	232.2	0.023
20	19.32	35.83	25.590	240.5	0.046	20	19.22	35.93	25.692	230.8	0.046	20	19.22	35.93	25.692	230.8	0.046
30	19.31	35.83	25.593	240.2	0.072	30	19.07	35.94	25.739	226.4	0.069	30	19.07	35.94	25.739	226.4	0.069
40	19.31	35.84	25.601	239.5	0.096	40	19.00	35.93	25.749	223.7	0.092	40	19.00	35.93	25.749	223.7	0.092
50	19.30	35.86	25.618	237.8	0.120	50	18.93	35.93	25.767	220.5	0.115	50	18.93	35.93	25.767	220.5	0.115
60	18.94	36.15	25.932	206.0	0.143	60	17.78	36.01	26.116	190.5	0.157	60	17.78	36.01	26.116	190.5	0.157
70	18.77	36.17	25.991	202.4	0.164	70	17.89	36.12	26.173	185.0	0.195	70	17.89	36.12	26.173	185.0	0.195
80	18.57	36.17	26.042	197.6	0.204	80	17.74	36.11	26.203	182.3	0.213	80	17.74	36.11	26.203	182.3	0.213
90	18.46	36.17	26.064	194.9	0.224	90	17.18	35.93	26.201	182.4	0.260	90	17.18	35.93	26.201	182.4	0.260
100	18.31	36.15	26.092	192.8	0.272	100	16.47	35.80	26.270	175.8	0.306	100	16.47	35.80	26.270	175.8	0.306
125	18.10	36.15	26.144	187.8	0.320	125	15.68	35.69	26.368	166.6	0.394	125	15.68	35.69	26.368	166.6	0.394
150	17.93	36.16	26.182	184.2	0.414	150	15.30	35.68	26.448	159.2	0.479	150	15.30	35.68	26.448	159.2	0.479
200	17.72	36.12	26.215	181.1	0.552	200	14.46	35.62	26.537	150.6	0.643	200	14.46	35.62	26.537	150.6	0.643
400	14.72	35.56	26.482	155.8	1.082	400	13.73	35.41	26.578	146.7	0.722	400	13.73	35.41	26.578	146.7	0.722
450	13.83	35.39	26.542	150.1	1.152	450	12.77	35.28	26.651	139.8	0.800	450	12.77	35.28	26.651	139.8	0.800
600	10.83	34.92	26.763	129.2	1.279	600	11.79	35.08	26.710	127.6	0.946	600	11.79	35.08	26.710	127.6	0.946
650	9.40	34.79	26.825	123.3	1.337	650	10.76	34.93	26.780	116.9	1.013	650	10.76	34.93	26.780	116.9	1.013
700	8.48	34.62	26.923	114.0	1.447	700	9.67	34.70	26.847	111.8	1.076	700	9.67	34.70	26.847	111.8	1.076
750	7.08	34.47	27.012	105.6	1.499	750	8.42	34.39	27.036	103.1	1.135	750	8.42	34.39	27.036	103.1	1.135
800	6.33	34.40	27.051	101.8	1.550	800	7.86	34.33	27.066	100.5	1.191	800	7.86	34.33	27.066	100.5	1.191
850	5.50	34.28	27.068	97.5	1.648	850	6.42	34.31	27.112	96.1	1.245	850	6.42	34.31	27.112	96.1	1.245
900	4.91	34.23	27.098	93.4	1.740	900	5.65	34.32	27.156	91.9	1.297	900	5.65	34.32	27.156	91.9	1.297
950	4.58	34.24	27.143	89.1	1.825	950	4.76	34.31	27.176	90.1	1.347	950	4.76	34.31	27.176	90.1	1.347
1000	4.22	34.21	27.158	85.1	1.904	1000	4.24	34.27	27.193	88.5	1.396	1000	4.24	34.27	27.193	88.5	1.396
1100	4.00	34.27	27.228	79.8	1.978	1100	4.05	34.26	27.231	84.8	1.444	1100	4.05	34.26	27.231	84.8	1.444
1200	3.44	34.27	27.284	72.7	2.045	1200	3.66	34.30	27.287	79.6	1.535	1200	3.66	34.30	27.287	79.6	1.535
1300	3.07	34.32	27.359	67.0	2.114	1300	3.30	34.31	27.329	75.5	1.621	1300	3.30	34.31	27.329	75.5	1.621
1400	3.11	34.40	27.419	62.1	2.175	1400	3.17	34.36	27.361	70.6	1.703	1400	3.17	34.36	27.361	70.6	1.703
1500	2.96	34.44	27.464	58.4	2.234	1500	2.89	34.40	27.439	65.1	1.780	1500	2.89	34.40	27.439	65.1	1.780
1600	2.87	34.57	27.576	52.1	2.290	1600	2.69	34.40	27.508	58.5	1.851	1600	2.69	34.40	27.508	58.5	1.851
1700	2.87	34.62	27.616	48.4	2.343	1700	2.66	34.45	27.573	52.4	1.917	1700	2.66	34.45	27.573	52.4	1.917
1800	3.00	34.69	27.660	44.2	2.395	1800	3.15	34.65	27.614	46.5	1.979	1800	3.15	34.65	27.614	46.5	1.979
1900	3.06	34.76	27.724	37.6	2.445	1900	3.35	34.74	27.667	43.5	2.039	1900	3.35	34.74	27.667	43.5	2.039
2000	3.11	34.79	27.758	34.9	2.494	2000	3.33	34.78	27.700	40.3	2.095	2000	3.33	34.78	27.700	40.3	2.095
2100	3.24	34.88	27.789	32.0	2.543	2100	3.47	34.84	27.734	37.1	2.149	2100	3.47	34.84	27.734	37.1	2.149
2200	3.37	34.92	27.808	29.3	2.592	2200	3.46	34.87	27.757	34.9	2.202	2200	3.46	34.87	27.757	34.9	2.202
2300	3.36	34.93	27.817	27.9	2.640	2300	3.51	34.90	27.776	33.0	2.253	2300	3.51	34.90	27.776	33.0	2.253
2400	3.29	34.94	27.832	25.1	2.681	2400	3.48	34.92	27.797	31.2	2.304	2400	3.48	34.92	27.797	31.2	2.304
2500	3.28	34.93	27.862	25.0	2.727	2500	3.45	34.93	27.808	30.1	2.353	2500	3.45	34.93	27.808	30.1	2.353
2600	2.72	34.92	27.866	24.4	2.772	2600	3.40	34.93	27.813	29.7	2.403	2600	3.40	34.93	27.813	29.7	2.403
2700	2.49	34.90	27.873	24.0	2.816	2700	3.33	34.95	27.836	27.5	2.452	2700	3.33	34.95	27.836	27.5	2.452
2800	1.96	34.84	27.868	24.4	2.857	2800	3.23	34.94	27.837	27.4	2.499	2800	3.23	34.94	27.837	27.4	2.499
2900	1.44	34.77	27.852	26.0	2.895	2900	3.12	34.94	27.848	26.4	2.547	2900	3.12	34.94	27.848	26.4	2.547
3000	1.03	34.73	27.848	26.4	2.930	3000	2.96	34.93	27.855	25.7	2.593	3000	2.96	34.93	27.855	25.7	2.593
3100	0.76	34.71	27.849	26.2	2.963	3100	2.75	34.90	27.850	26.2	2.638	3100	2.75	34.90	27.850	26.2	2.638
3200	0.46	34.70	27.859	25.3	2.993	3200	2.38	34.88	27.866	24.7	2.682	3200	2.38	34.88	27.866	24.7	2.682
3300	0.34	34.69	27.858	25.4	3.020	3300	1.80	34.78	27.833	27.8	2.723	3300	1.80	34.78	27.833	27.8	2.723
3400	0.27	34.69	27.862	25.0	3.047	3400	1.42	34.75	27.837	27.4	2.762	3400	1.42	34.75	27.837	27.4	2.762
3500	0.20	34.68	27.858	25.4	3.072	3500	1.11	34.72	27.835	27.6	2.798	3500	1.11	34.72	27.835	27.6	2.798
4000	0.17	34.67	27.852	26.0	3.196	4000	0.83	34.70	27.837	27.4	2.832	4000	0.83	34.70	27.837	27.4	2.832
4300	0.13	34.67	27.854	25.0	3.223	4300	0.53	34.68	27.839	27.2	2.854	4300	0.53	34.68	27.839	27.2	2.854
4400	0.10	34.67	27.855	25.7	3.248												
4500	0.10	34.67	27.855	25.7	3.273												

RV MELVILLE								CATO EXPEDITION VI								23
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
33 43.3S		49 02.7W		11/20/72		0500 0644		GMT	3307M	260	16KT	0	240 5			
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S10T	DT	DD	
0	19.40	35.990	5.35	0.09	1.3	0.01	0.0	230.8	0	19.40	35.990	5.35	25.691	230.8	0.000	
42	19.55	36.082	5.35	0.09	1.3	0.01	0.0	227.9	10	19.44	36.010	5.35	25.699	230.1	0.023	
51A	19.30	36.078	5.27	0.11	1.3	0.00	0.0	222.0	20	19.47	36.032	5.35	25.706	229.4	0.046	
63	18.57	36.068	5.28	0.11	1.2	0.01	0.0	205.0	30	19.51	36.054	5.35	25.714	228.7	0.069	
77A	18.17	36.055	5.20	0.19	1.4	0.07	0.4	176.4	50	19.54	36.077	5.28	25.775	222.8	0.115	
105	17.76	36.027	5.19	0.21	1.4	0.02	1.6	188.4	75	18.21	36.056	5.21	26.046	197.1	0.168	
181A	17.47	36.023	5.29	0.22	1.5	0.01	1.8	182.3	100	17.81	36.030	5.19	26.126	189.5	0.217	
258A	15.76	35.693	4.94	0.41	1.7	0.02	4.3	168.1	125	17.69	36.036	5.23	26.159	186.4	0.265	
361A	14.72	35.574	5.08	0.50	2.2	0.01	5.9	154.7	150	17.60	36.038	5.26	26.183	184.1	0.312	
464A	12.93	35.257	4.99	0.75	3.8	0.01	10.3	142.3	200	17.08	35.943	5.21	26.237	179.0	0.406	
568A	10.68	34.922	5.06	1.10	5.4	0.00	14.9	126.5	250	15.95	35.728	4.98	26.336	169.6	0.497	
670A	7.88	34.543	5.15	1.45	9.6	0.02	20.6	111.1	300	15.29	35.636	4.97	26.415	162.2	0.584	
772A	6.19	34.392	5.33	1.67	12.9	0.00	24.3	100.1	400	14.11	35.466	5.05	26.541	150.2	0.751	
925A	4.638	34.298	5.33	1.90	20.6	0.00	28.0	89.4	500	12.21	35.146	5.00	26.680	137.0	0.906	
1128A	3.49	34.273	5.35	2.10	31.8	0.01	30.4	80.0	600	9.77	34.789	5.08	26.845	121.4	1.048	
1333A	3.10	34.410	4.63	2.19	47.3	0.01	32.3	66.2	700	7.30	34.485	5.21	26.992	107.5	1.175	
1536A	2.93	34.547	4.41	2.22	54.9		32.4	54.4	800	5.84	34.367	5.33	27.094	97.8	1.288	
1740A	3.16	34.693	4.53	2.00	50.3		29.0	45.4	1000	4.11	34.273	5.34	27.219	85.9	1.491	
2047A	3.42	34.862	5.21	1.61	35.1	0.01	24.1	35.0	1200	3.30	34.313	5.11	27.332	75.3	1.670	
2252A	3.44	34.907	5.64	1.42	26.9		21.6	31.4	1500	2.94	34.523	4.42	27.532	56.3	1.895	
2458A	3.32	34.942	5.72	1.37	27.4	0.00	20.9	28.0	1750	3.17	34.701	4.55	27.652	45.0	2.050	
2666A	3.090	34.936	5.81	1.36	28.6	0.00	20.5	26.4	2000	3.39	34.842	5.09	27.744	36.2	2.187	
2875A	2.502	34.885	5.61	1.51	46.6		22.7	25.4	2250	3.44	34.906	5.64	27.791	31.8	2.315	
2980A	1.274	34.744	4.90	2.05	101.4	0.01	30.1	26.9								

RV MELVILLE										CATO EXPEDITION VI							24
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
33 20.8S		49 21.5W		11/20/72		1712 1838		GMT	2333M	210	20KT	1	210 5 5				
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S10T	DT	DD		
0	19.77	36.034	5.26	0.10	1.6	0.00	0.0	236.8	0	19.77	36.034	5.26	25.628	236.8	0.000		
42	19.68	36.069	5.33	0.09	1.6	0.00	0.0	232.1	10	19.75	36.041	5.27	25.640	235.7	0.024		
57A	19.30	36.073	5.36	0.12V	1.6	0.00	0.0	222.4	20	19.73	36.049	5.29	25.652	234.6	0.047		
63	18.76	36.138	5.32	0.09	1.2	0.00	0.0	204.5	30	19.71	36.057	5.31	25.664	233.4	0.071		
105	17.89	36.082	5.00	0.20	1.5	0.02	1.5	187.8	50	19.48	36.069	5.35	25.733	226.9	0.117		
126	17.92	36.134	5.09	0.17	1.5	0.02	1.3	184.7	75	18.51	36.120	5.20	26.019	199.7	0.171		
161A	17.80	36.120	5.20	0.17	1.6		1.2	182.9	100	17.99	36.087	5.02	26.123	189.8	0.220		
265A	15.94	35.735	4.94	0.38	2.0		4.2	168.9	125	17.92	36.131	5.08	26.176	184.8	0.268		
369A	14.53	35.526	4.82	0.50	2.9		6.7	154.3	150	17.86	36.133	5.17	26.191	183.3	0.315		
472A	12.84	35.246	4.72	0.80	4.1		10.8	141.4	200	17.21	35.991	5.15	26.243	178.5	0.409		
575A	10.83	34.948	4.83	1.04	5.9	0.01	14.7	127.1	250	16.26	35.798	5.00	26.318	171.4	0.500		
678A	8.32	34.609	4.88	1.40	9.6		20.4	112.5	300	15.46	35.659	4.89	26.396	164.0	0.588		
780A	6.28	34.410	5.13	1.68	13.9		24.8	99.8	400	14.05	35.446	4.78	26.538	150.4	0.756		
934A	4.77	34.307	5.24	1.88	20.2		27.9	90.2	500	12.33	35.169	4.74	26.674	137.6	0.912		
1087A	3.59	34.278	5.18	2.02	30.5		30.0	80.6	600	10.22	34.859	4.84	26.823	123.5	1.056		
1240A	3.20	34.361	4.66	2.19	44.3	0.00	32.3	70.8	700	7.83	34.555	4.93	26.971	109.5	1.185		
1394A	3.06	34.475	4.36	2.22	52.2		32.7	60.9	800	6.02	34.390	5.14	27.089	96.3	1.300		
1548A	2.78	34.526	4.27	2.21	60.4		32.7	54.7	1000	4.19	34.284	5.21	27.218	86.0	1.504		
1702A	3.07	34.663	4.41	2.00	53.7		30.4	46.8	1200	3.25	34.334	4.81	27.352	73.3	1.681		
1907A	3.467	34.83	4.88	1.67	37.0		25.4	37.8	1500	2.84	34.509	4.30	27.530	56.5	1.903		
2113A	3.565	34.923	5.35	1.44	27.9	0.00	22.4	31.7	1750	3.18	34.707	4.51	27.656	44.5	2.057		
2270A	3.371	34.903	5.36	1.50	32.8		22.9	31.4	2000	3.51	34.879	5.12	27.762	34.5	2.193		
2321A	3.24		5.39	1.53	36.7	0.00	23.3		2250	3.41	34.907	5.36	27.794	31.5	2.319		

RV MELVILLE										CATO EXPEDITION VI							25
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
33 08.9S		49 35.5W		11/20/72		2119 2213		GMT	1399M	160	17KT	0	190 3 4				
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S10T	DT	DD		
0	19.50	35.920	5.53	0.10	1.7	0.00	0.0	238.4	0	19.50	35.920	5.53	25.612	238.4	0.000		
41	19.52	35.918	5.38	0.10	1.7	0.00	0.0	239.0	10	19.50	35.918	5.49	25.610	238.6	0.024		
48A	19.51	35.918	5.32	0.11	1.6	0.01	0.0	238.8	20	19.51	35.918	5.46	25.609	238.7	0.048		
63	19.43		5.35	0.10	1.6	0.00	0.0		30	19.51	35.917	5.42	25.607	238.9	0.072		
100A	18.88	36.233	5.41	0.08	1.0	0.01	0.0	200.5	50	19.50	35.930	5.32	25.620	237.7	0.120		
104	18.71	36.201	5.23	0.10	1.0	0.04	0.1	198.7	75	19.25	36.071	5.37	25.793	221.2	0.178		
126	18.11	36.124	5.30	0.15	1.2	0.02	1.1	189.9	100	18.88	36.233	5.41	26.011	200.5	0.231		
153A	17.92	36.099	5.31	0.12	1.0	0.02	1.1	187.3	125	18.13	36.123	5.30	26.118	190.2	0.281		
257A	16.80	35.884	4.99	0.28	1.5	0.02	3.0	177.1	150	17.93	36.099	5.31	26.149	187.3	0.330		
360A	14.87	35.580	4.95	0.50	2.2	0.01	6.3	157.4	200	17.50	36.019	5.18	26.192	183.3	0.425		
463A	13.64	35.372	4.92	0.65	3.1		8.6	147.7	250	16.90	35.902	5.02	26.248	178.0	0.519		
566A	11.59	35.046	4.98	0.99	5.0		13.8	133.1	300	16.00	35.753	4.97	26.344	168.9	0.610		
666A	8.92	34.691	4.88	1.34	8.8		19.4	115.3	400	14.40	35.502	4.93	26.508	153.3	0.782		
768A	6.64	34.440	5.17	1.65	12.7		24.0	102.1	500	12.99	35.264	4.95	26.617	142.9	0.943		
870A	5.23	34.313	5.50	1.80	15.8	0.01	26.1	94.7	600	10.70	34.917	4.93	26.786	127.0	1.092		
1022A	4.26	34.300	5.20	2.02	25.9		29.3	85.4	700	8.09	34.594	4.95	26.962	110.3	1.223		
1124A	3.76	34.306	5.07	2.07	31.8		30.2	80.1	800	6.12	34.390	5.29	27.077	99.5	1.340		
1227A	3.52	34.340	4.89	2.15	38.0		31.4	75.2	1000	4.35	34.296	5.27	27.212	86.6	1.546		
1331A	3.290	34.388	4.70	2.21	44.3		32.4	69.5	1200	3.57	34.330	4.94	27.319	76.5	1.728		
1383A	3.146	34.442		2.22	50.0	0.01	32.3	64.2									

23 STD						CATO EXPEDITION V1						24 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
33 43.3S		49 02.7W		11/20/72		0350 GMT		33 20.8S		49 21.5W		11/20/72		1615 GMT			
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.40	35.99	25.691	230.6	0.000	0	19.77	36.03	25.625	237.1	0.000	0	19.77	36.03	25.625	237.1	0.000
10	19.42	36.00	25.694	230.6	0.023	10	19.78	36.04	25.630	236.7	0.024	10	19.78	36.04	25.630	236.7	0.024
20	19.44	36.04	25.709	229.2	0.046	20	19.72	36.05	25.654	234.4	0.047	20	19.72	36.05	25.654	234.4	0.047
30	19.55	36.07	25.713	228.8	0.069	30	19.68	36.05	25.664	233.4	0.071	30	19.68	36.05	25.664	233.4	0.071
40	19.53	36.07	25.719	228.3	0.092	40	19.70	36.07	25.674	232.5	0.094	40	19.70	36.07	25.674	232.5	0.094
50	19.40	36.06	25.745	225.8	0.115	50	19.69	36.06	25.684	231.5	0.118	50	19.69	36.06	25.684	231.5	0.118
60	18.88	36.03	25.856	215.2	0.137	60	18.89	36.01	25.838	216.9	0.140	60	18.89	36.01	25.838	216.9	0.140
70	18.44	36.02	25.960	205.3	0.158	70	18.38	36.08	26.021	199.5	0.161	70	18.38	36.08	26.021	199.5	0.161
80	18.11	36.02	26.042	197.5	0.179	80	18.12	36.06	26.071	194.6	0.181	80	18.12	36.06	26.071	194.6	0.181
90	18.04	36.08	26.106	191.5	0.199	90	18.00	36.06	26.100	192.0	0.201	90	18.00	36.06	26.100	192.0	0.201
100	17.77	36.02	26.127	189.5	0.218	100	17.69	36.07	26.135	188.7	0.220	100	17.69	36.07	26.135	188.7	0.220
150A	17.78	36.15	26.324	180.3	0.313	125	17.92	36.13	26.174	185.0	0.268	125	17.92	36.13	26.174	185.0	0.268
300A	15.26	35.66	26.440	159.8	0.578	150A	17.78	36.06	26.155	186.8	0.316	150A	17.78	36.06	26.155	186.8	0.316
350A	14.71	35.59	26.508	153.4	0.662	200A	17.46	36.01	26.195	183.0	0.411	200A	17.46	36.01	26.195	183.0	0.411
400A	14.43	35.55	26.538	150.5	0.743	250A	16.38	35.74	26.246	178.2	0.505	250A	16.38	35.74	26.246	178.2	0.505
450A	13.48	35.36	26.591	145.4	0.823	300A	15.34	35.66	26.422	161.5	0.594	300A	15.34	35.66	26.422	161.5	0.594
500A	12.43	35.19	26.671	137.8	0.900	350A	14.79	35.58	26.462	155.7	0.679	350A	14.79	35.58	26.462	155.7	0.679
550A	11.34	35.04	26.763	129.1	0.974	400A	14.21	35.47	26.523	151.9	0.761	400A	14.21	35.47	26.523	151.9	0.761
600A	9.83	34.75	26.805	125.1	1.044	450A	13.30	35.32	26.598	144.8	0.841	450A	13.30	35.32	26.598	144.8	0.841
650A	8.04	34.54	26.928	113.6	1.110	500A	12.36	35.13	26.639	140.5	0.919	500A	12.36	35.13	26.639	140.5	0.919
700A	7.44	34.52	27.000	106.7	1.170	550A	11.27	35.00	26.745	130.9	0.993	550A	11.27	35.00	26.745	130.9	0.993
750A	6.39	34.42	27.066	100.5	1.228	600A	10.34	34.86	26.803	125.3	1.064	600A	10.34	34.86	26.803	125.3	1.064
800A	4.63	34.27	27.161	91.5	1.387	650A	9.21	34.70	26.870	119.1	1.132	650A	9.21	34.70	26.870	119.1	1.132
850A	4.32	34.28	27.203	87.5	1.436	700A	7.66	34.54	26.984	108.2	1.195	700A	7.66	34.54	26.984	108.2	1.195
1000A	4.12	34.29	27.232	84.8	1.483	750A	6.72	34.44	27.038	103.2	1.253	750A	6.72	34.44	27.038	103.2	1.253
1100A	3.62	34.29	27.283	79.9	1.575	800A	5.61	34.35	27.085	98.6	1.309	800A	5.61	34.35	27.085	98.6	1.309
1200A	3.39	34.33	27.337	74.8	1.661	850A	5.12	34.29	27.121	95.2	1.363	850A	5.12	34.29	27.121	95.2	1.363
1300A	3.17	34.39	27.405	68.3	1.741	900A	4.94	34.30	27.150	92.5	1.414	900A	4.94	34.30	27.150	92.5	1.414
1400A	2.93	34.44	27.467	62.5	1.816	950A	4.75	34.32	27.187	89.0	1.465	950A	4.75	34.32	27.187	89.0	1.465
1500A	2.86	34.51	27.529	56.6	1.885	1000A	4.29	34.31	27.230	85.0	1.513	1000A	4.29	34.31	27.230	85.0	1.513
1600A	2.98	34.58	27.574	52.3	1.949	1100A	3.55	34.30	27.293	78.9	1.604	1100A	3.55	34.30	27.293	78.9	1.604
1800A	5.16	34.73	27.677	42.6	2.068	1200A	3.34	34.35	27.357	72.8	1.689	1200A	3.34	34.35	27.357	72.8	1.689
1900A	3.35	34.80	27.714	39.0	2.123	1300A	3.21	34.41	27.417	67.2	1.768	1300A	3.21	34.41	27.417	67.2	1.768
2000A	3.49	34.86	27.748	35.0	2.176	1400A	3.10	34.49	27.491	60.2	1.841	1400A	3.10	34.49	27.491	60.2	1.841
2100A	3.50	34.89	27.771	33.6	2.227	1500A	3.04	34.56	27.553	54.3	1.908	1500A	3.04	34.56	27.553	54.3	1.908
2400A	3.37	34.93	27.816	29.4	2.376	1600A	2.50	34.57	27.573	52.4	1.972	1600A	2.50	34.57	27.573	52.4	1.972
2500A	3.27	34.92	27.818	29.2	2.424	1700A	3.26	34.68	27.626	47.4	2.053	1700A	3.26	34.68	27.626	47.4	2.053
2600A	3.16	34.93	27.836	27.5	2.472	1800A	3.36	34.77	27.689	41.4	2.091	1800A	3.36	34.77	27.689	41.4	2.091
2700A	3.01	34.93	27.850	26.2	2.518	1900A	3.42	34.83	27.731	37.4	2.145	1900A	3.42	34.83	27.731	37.4	2.145
2800A	2.87	34.92	27.855	25.7	2.563	2000A	3.57	34.90	27.772	33.5	2.197	2000A	3.57	34.90	27.772	33.5	2.197
2900A	2.25	34.85	27.853	25.9	2.605	2100A	3.61	34.92	27.784	32.4	2.247	2100A	3.61	34.92	27.784	32.4	2.247
3000A	1.26	34.74	27.840	27.1	2.643	2200A	3.50	34.93	27.803	30.6	2.296	2200A	3.50	34.93	27.803	30.6	2.296
						2300A	3.55	34.89	27.786	32.2	2.346	2300A	3.55	34.89	27.786	32.2	2.346
						2339A	3.25	34.89	27.796	31.3	2.365	2339A	3.25	34.89	27.796	31.3	2.365

25 STD					
LATITUDE		LONGITUDE		MO/DAY/YR	
33 08.9S		49 35.5W		11/20/72	
START TIME		2029 GMT			
Z	T	S	SIGMA T	DT	DD
0	19.50	35.92	25.612	238.4	0.000
10	19.53	35.93	25.612	238.4	0.024
20	19.51	35.92	25.609	238.6	0.048
30	19.51	35.92	25.609	238.6	0.072
40	19.53	35.92	25.604	239.1	0.096
50	19.51	35.93	25.617	237.9	0.120
60	19.45	35.89	25.602	239.3	0.144
70	19.39	35.88	25.610	238.6	0.168
80	18.87	36.17	25.965	204.8	0.190
90	18.87	36.23	26.011	200.5	0.211
100	18.73	36.23	26.047	197.1	0.231
125	18.12	36.13	26.124	189.7	0.281
150A	17.99	36.12	26.149	187.4	0.329
200A	17.89	36.14	26.189	183.6	0.425
250A	17.04	35.93	26.235	179.2	0.519
300A	15.73	35.69	26.357	167.6	0.610
350A	15.04	35.62	26.458	158.0	0.697
400A	14.64	35.53	26.477	156.3	0.781
450A	13.81	35.42	26.569	147.5	0.863
500A	12.63	35.24	26.631	141.7	0.942
550A	11.58	35.04	26.718	133.4	1.017
600A	10.45	34.88	26.800	125.7	1.089
750A	7.05	34.47	27.016	105.2	1.281
800A	6.23	34.40	27.071	100.0	1.338
850A	5.44	34.33	27.115	95.8	1.392
900A	4.97	34.30	27.146	92.9	1.444
950A	4.46	34.27	27.180	89.7	1.495
1000A	4.26	34.29	27.217	86.2	1.543
1100A	3.91	34.31	27.269	81.2	1.636
1200A	3.60	34.33	27.316	76.7	1.725
1300A	3.34	34.37	27.373	71.3	1.808
1400A	3.05	34.49	27.496	59.7	1.888



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RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
32 47.9S		50 11.7W		11/21/72		025A 0344		GMT		839M		220		19KT		1		220 5 6	
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S103	DT	DD				
0	22.11	36.670	4.98	0.07	1.0 0.00	0.0	251.6	0	22.11	36.670	4.98	25.473	251.6	0.000					
41	21.96	36.691	5.03	0.06	1.4 0.00	0.0	246.0	10	22.07	36.670	5.00	25.485	250.5	0.025					
62	21.88	36.713	5.03	0.06	1.2 0.00	0.0	242.3	20	22.04	36.674	5.01	25.498	249.2	0.050					
84A	21.89	36.728	5.00	0.05	0.8 0.00	0.0	241.5	30	22.00	36.680	5.02	25.513	247.8	0.075					
104	21.79	36.748	5.04	0.05	1.0 0.00	0.0	237.4	50	21.92	36.696	5.03	25.549	244.3	0.125					
125	21.11	36.633	4.85	0.09	1.0 0.07	0.2	227.7	75	21.89	36.720	5.01	25.575	241.9	0.186					
137A	20.02	36.407	4.95	0.15	1.2 0.09	0.7	216.1	100	21.81	36.737	5.04	25.610	238.5	0.247					
187A	17.97	36.075	5.17	0.20	1.2 0.04	1.0	190.2	125	21.11	36.633	4.85	25.724	227.7	0.306					
239A	16.49	35.776	4.87	0.37	1.6 0.01	3.4	178.0	150	19.26	36.272	5.05	25.943	207.0	0.362					
336A	13.08	35.269	4.85	0.78	3.9 0.01	10.3	144.3	200	17.58	35.997	5.11	26.157	166.6	0.463					
409A	9.13	34.743	4.77	1.40	9.7	19.7	114.7	250	16.18	35.725	4.87	26.282	174.7	0.557					
478A	6.64	34.460	4.98	1.70	13.9	24.6	100.6	300	14.52	35.471	4.86	26.458	158.1	0.645					
549A	5.44	34.362	5.08	1.84	18.2 0.01	27.1	93.4	400	9.61	34.799	4.77	26.681	118.0	0.792					
619A	4.63	34.299	5.31	1.93	20.9 0.03	27.9	89.3	500	6.17	34.420	5.01	27.093	97.9	0.907					
688A	4.28	34.297	5.20	1.99	24.7 0.00	29.2	85.8	600	4.81	34.312	5.26	27.174	90.2	1.008					
759A	3.83	34.304	5.11	2.10	30.5	30.5	80.9	700	4.20	34.298	5.18	27.230	85.0	1.102					
806A	3.69	34.315	5.04	2.10	33.2 0.00	30.8	78.7	800	3.70	34.314	5.05	27.293	78.9	1.190					

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RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
30 35.4S		47 40.6W		11/21/72		2306 0016		GMT		1594M		190		20KT		2		170 10	
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S103	DT	DD				
0	21.99	36.834	5.11	0.06	1.0 0.00	0.0	236.4	0	21.99	36.834	5.11	25.631	236.5	0.000					
10	22.01	36.831	5.13	0.05	1.0 0.00	0.0	237.3	10	22.01	36.831	5.13	25.623	237.3	0.024					
21	21.95	36.828	5.08	0.03	0.8 0.00	0.0	235.4	20	21.96	36.826	5.09	25.636	236.1	0.047					
41	21.77	36.817	5.08	0.04	1.0 0.00	0.0	231.9	30	21.87	36.821	5.08	25.657	234.1	0.071					
82	21.59	36.799	5.07	0.05	0.8 0.00	0.0	228.4	50	21.73	36.807	5.08	25.686	231.4	0.118					
113	20.33	36.494	5.05	0.10	0.8 0.14	0.4	217.7	75	21.62	36.797	5.07	25.708	229.2	0.176					
144	18.58	36.139	5.18	0.13	1.0 0.13	0.5	200.1	100	20.95	36.638	5.06	25.773	225.0	0.233					
185	17.64	36.029	5.16	0.19	1.0 0.04	1.4	185.8	125	19.63	36.341	5.10	25.901	210.9	0.289					
208A	17.26	35.943	5.09	0.27	1.3 0.02	2.3	183.3	150	18.38	36.111	5.18	26.045	197.3	0.341					
260A	16.17	35.757	4.98	0.37	1.6 0.02	3.8	172.3	200	17.39	35.973	5.12	26.184	184.0	0.439					
311A	15.12	35.610	4.92	0.49	2.0 0.02	5.8	160.4	250	16.39	35.790	5.00	26.282	174.8	0.533					
364A	14.35	35.501	4.97	0.53	2.4 0.01	7.2	152.4	300	15.33	35.637	4.93	26.407	162.9	0.622					
465A	11.80	35.079	4.88	0.96	4.6	13.5	134.4	400	13.54	35.363	4.94	26.582	146.3	0.786					
567A	8.91	34.696	4.96	1.31	9.2	19.5	114.8	500	10.81	34.939	4.91	26.761	127.5	0.935					
670A	6.23	34.396	5.40	1.67	12.9	24.6	100.4	600	7.97	34.584	5.09	26.971	109.5	1.064					
770A	4.77	34.274	5.72	1.76	17.4	26.5	92.6	700	5.68	34.344	5.54	27.096	97.6	1.177					
871A	4.36	34.300	5.29	1.91	19.7 0.01	29.2	86.4	800	4.60	34.276	5.62	27.168	90.8	1.280					
974A	3.78	34.321	5.02	2.12	33.2	30.9	75.1	1000	3.71	34.326	4.98	27.302	78.1	1.465					
1075A	3.54	34.347	4.88	2.13	38.8 0.00	31.9	74.9	1200	3.17	34.433	4.66	27.439	65.1	1.625					
1177A	3.18	34.422	4.67	2.18	48.4 0.03	32.0	66.0	1500	3.21	34.633	4.54	27.593	50.5	1.828					
1280A	3.12	34.458	4.63	2.23	50.4 0.02	32.6	62.7												
1434A	3.082	34.563	4.45	2.10	53.8 0.02	31.6	54.4												
1538A	3.312	34.674	4.62	2.00	47.2 0.03	29.7	48.2												
1590A	3.436	34.729	4.72	1.90	43.7 0.02	28.4	45.2												

RV MELVILLE										CATO EXPEDITION VI										28
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES							
30 35.6S		46 40.1W		11/22/72		0729 0905		GMT	3261M	140	9KT	1	210 10 8							
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S103	DT	DD					
0	20.65	36.408	5.24	0.05	1.0 0.00	0.0	0.0	232.1	0	20.65	36.408	5.24	25.678	232.1	0.000					
42	20.68	36.413	5.18	0.04	1.0 0.00	0.0	0.0	232.5	10	20.66	36.407	5.22	25.677	232.2	0.023					
63	19.45	36.302	5.16	0.07	1.3 0.00	0.0	0.0	209.5	20	20.66	36.408	5.21	25.676	232.3	0.047					
105	17.91	36.124	5.28	0.14	1.2 0.12	0.5	0.5	185.2	30	20.67	36.410	5.19	25.675	232.4	0.070					
146	17.45	36.023	5.14	0.21	1.4 0.02	1.7	1.7	181.8	50	20.24	36.371	5.17	25.761	224.2	0.116					
165A	16.98	35.923	5.01	0.28	1.7 0.02	2.5	2.5	178.4	75	18.89	36.242	5.20	26.016	200.0	0.169					
187	16.33	35.797	4.91	0.37	1.9 0.02	3.9	3.9	173.0	100	18.03	36.141	5.27	26.155	186.8	0.219					
269A	14.85	35.573	4.94	0.54	2.4 0.01	6.0	6.0	157.5	125	17.67	36.067	5.24	26.189	183.6	0.266					
372A	13.61	35.377	4.81	0.66	3.3 0.01	9.0	9.0	146.7	150	17.36	36.002	5.11	26.214	181.2	0.313					
476A	11.61	35.055	4.79	1.01	5.2 0.01	13.4	13.4	132.8	200	16.03	35.746	4.91	26.352	170.1	0.403					
579A	9.05	34.713	4.76	1.35	9.4	20.2	20.2	115.6	250	15.11	35.605	4.93	26.432	160.5	0.489					
681A	6.99		4.95	1.66	13.3 0.00	24.3	24.3		300	14.48	35.517	4.90	26.502	153.9	0.572					
784A	5.63	34.367	5.12	1.86	17.3	26.8	26.8	95.3	400	13.14	35.298	4.80	26.614	143.3	0.731					
887A	4.50	34.301	5.22	1.94	23.8	29.3	29.3	87.8	500	11.02	34.969	4.78	26.767	128.8	0.878					
1040A	3.72	34.333	4.93	2.17	35.1	31.7	31.7	77.6	600	8.58	34.654	4.79	26.934	113.0	1.010					
1194A	3.22	34.398	4.52	2.26	46.8	33.4	33.4	68.2	700	6.70	34.452	4.98	27.049	102.1	1.129					
1348A	3.06	34.508	4.43	2.26	50.3 0.00	33.5	33.5	58.4	800	5.43	34.354	5.15	27.134	94.0	1.237					
1502A	3.14	34.631	4.45	2.09	52.1	31.4	31.4	49.9	1000	3.86	34.318	5.04	27.280	80.2	1.429					
1655A	3.37	34.746	4.68	1.89	44.2	28.7	28.7	43.3	1200	3.21	34.403	4.52	27.411	67.8	1.594					
1911A	3.52	34.871	5.27	1.62	33.0	24.3	24.3	35.2	1500	3.14	34.631	4.45	27.599	50.0	1.800					
2218A	3.375	34.929	5.53	1.43	27.4	21.5	21.5	29.5	1750	3.46	34.801	4.90	27.705	39.9	1.943					
2525A	3.12	34.936	5.83	1.33	28.3 0.00	20.6	20.6	26.7	2000	3.50	34.895	5.37	27.776	33.2	2.073					
2730A	2.943	34.931	5.83	1.34	30.3	20.7	20.7	25.5	2250	3.35	34.931	5.57	27.819	29.1	2.194					
2937A	2.724	34.915	5.82	1.36	36.0	19.7	19.7	24.8	2500	3.14	34.937	5.81	27.843	26.8	2.309					
3143A	2.080	34.853	5.60	1.65	60.2	24.4	24.4	24.4	2750	2.93	34.930	5.83	27.858	25.4	2.421					
3246A	1.987	34.846	5.59	1.67	64.3 0.00	24.9	24.9	24.2	3000	2.52	34.894	5.75	27.866	24.7	2.529					
									3250	1.98	34.846	5.59	27.871	24.1	2.630					



26 STD						CATO EXPEDITION VI						27 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
32 47.9S	50 11.7W	11/21/72	0212 GMT			30 35.4S	47 40.6W	11/21/72	2212 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	22.11	36.67	25.473	251.6	0.000	0	22.00	36.83	25.625	237.1	0.000	0	22.00	36.83	25.625	237.1	0.000
10	22.09	36.67	25.478	251.1	0.025	10	22.00	36.83	25.625	237.1	0.024	10	22.00	36.83	25.625	237.1	0.024
20	22.06	36.68	25.495	249.5	0.050	20	21.95	36.82	25.632	236.5	0.047	20	21.95	36.82	25.632	236.5	0.047
30	21.97	36.69	25.528	246.4	0.075	30	21.83	36.81	25.658	234.0	0.071	30	21.83	36.81	25.658	234.0	0.071
40	21.84	36.70	25.544	244.9	0.100	40	21.81	36.81	25.664	233.4	0.095	40	21.81	36.81	25.664	233.4	0.095
50	21.91	36.70	25.552	244.1	0.124	50	21.77	36.80	25.667	233.1	0.118	50	21.77	36.80	25.667	233.1	0.118
60	21.91	36.70	25.552	244.1	0.149	60	21.60	36.76	25.684	231.5	0.142	60	21.60	36.76	25.684	231.5	0.142
70	21.91	36.70	25.552	244.1	0.174	70	21.61	36.80	25.712	228.8	0.165	70	21.61	36.80	25.712	228.8	0.165
80	21.90	36.72	25.570	242.3	0.198	80	21.58	36.79	25.713	228.8	0.188	80	21.58	36.79	25.713	228.8	0.188
90	21.81	36.74	25.610	238.5	0.223	90	21.51	36.77	25.717	228.4	0.211	90	21.51	36.77	25.717	228.4	0.211
100	21.78	36.75	25.626	237.0	0.247	100	21.39	36.75	25.735	226.6	0.234	100	21.39	36.75	25.735	226.6	0.234
125	20.93	36.56	25.717	228.3	0.306	125A	19.84	36.34	25.843	216.4	0.291	125A	19.84	36.34	25.843	216.4	0.291
150A	19.32	36.30	25.946	206.4	0.362	150A	18.77	36.20	26.014	200.2	0.344	150A	18.77	36.20	26.014	200.2	0.344
200A	17.88	36.10	26.161	186.3	0.463	200A	17.52	35.97	26.150	187.3	0.444	200A	17.52	35.97	26.150	187.3	0.444
250A	15.70	35.67	26.349	168.5	0.555	250A	16.48	35.79	26.260	176.8	0.539	250A	16.48	35.79	26.260	176.8	0.539
300A	14.68	35.57	26.455	158.4	0.641	300A	15.39	35.65	26.403	163.3	0.628	300A	15.39	35.65	26.403	163.3	0.628
350A	12.36	35.12	26.631	141.7	0.721	350A	14.49	35.53	26.509	153.2	0.712	350A	14.49	35.53	26.509	153.2	0.712
400A	9.39	34.76	26.887	117.4	0.790	400A	13.60	35.38	26.582	146.3	0.792	400A	13.60	35.38	26.582	146.3	0.792
450A	7.44	34.53	27.008	106.0	0.850	450A	12.42	35.18	26.666	138.4	0.869	450A	12.42	35.18	26.666	138.4	0.869
500A	6.22	34.41	27.080	99.1	0.905	500A	11.05	34.94	26.739	131.5	0.943	500A	11.05	34.94	26.739	131.5	0.943
550A	5.45	34.36	27.137	93.7	0.956	550A	9.33	34.75	26.889	117.2	1.011	550A	9.33	34.75	26.889	117.2	1.011
600A	4.76	34.31	27.178	89.6	1.005	600A	6.80	34.45	27.035	103.4	1.131	600A	6.80	34.45	27.035	103.4	1.131
650A	4.44	34.30	27.206	87.2	1.053	700A	5.60	34.31	27.079	99.2	1.187	700A	5.60	34.31	27.079	99.2	1.187
700A	4.24	34.30	27.227	85.2	1.099	750A	4.95	34.28	27.133	94.1	1.239	750A	4.95	34.28	27.133	94.1	1.239
750A	3.88	34.31	27.272	80.9	1.144	800A	4.85	34.31	27.168	90.8	1.290	800A	4.85	34.31	27.168	90.8	1.290
800A	3.65	34.31	27.295	78.7	1.187	850A	4.46	34.30	27.203	87.4	1.339	850A	4.46	34.30	27.203	87.4	1.339
850A	3.54	34.31	27.306	77.7	1.217	900A	4.16	34.30	27.235	84.4	1.386	900A	4.16	34.30	27.235	84.4	1.386
						950A	3.89	34.32	27.279	80.3	1.431	950A	3.89	34.32	27.279	80.3	1.431
						1000A	3.74	34.33	27.302	78.1	1.475	1000A	3.74	34.33	27.302	78.1	1.475
						1100A	3.46	34.36	27.354	73.2	1.559	1100A	3.46	34.36	27.354	73.2	1.559
						1200A	3.19	34.43	27.435	65.5	1.636	1200A	3.19	34.43	27.435	65.5	1.636
						1300A	3.12	34.47	27.473	61.8	1.709	1300A	3.12	34.47	27.473	61.8	1.709
						1500A	3.29	34.66	27.609	49.0	1.840	1500A	3.29	34.66	27.609	49.0	1.840
						1600A	3.45	34.74	27.657	44.5	1.899	1600A	3.45	34.74	27.657	44.5	1.899

28 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 35.6S	46 40.1W	11/22/72	0614 GMT		
Z	T	S	SIGMA T	DT	DD
0	20.67	36.42	25.682	231.7	0.000
10	20.68	36.42	25.679	232.0	0.023
20	20.68	36.42	25.679	232.0	0.046
30	20.68	36.42	25.679	232.0	0.070
40	20.68	36.42	25.679	232.0	0.093
50	20.68	36.42	25.679	232.0	0.116
60	19.52	36.30	25.896	211.5	0.139
70	18.56	36.11	25.998	201.7	0.160
80	18.31	36.07	26.031	198.6	0.180
90	17.99	36.11	26.141	188.1	0.200
100	17.90	36.11	26.163	186.0	0.219
125	17.79	36.11	26.190	183.4	0.266
150	17.27	35.96	26.203	182.5	0.313
200A	15.95	35.68	26.299	173.1	0.404
250A	15.16	35.65	26.454	158.4	0.491
300A	14.50	35.56	26.530	151.2	0.572
350A	14.02	35.47	26.563	148.1	0.652
400A	13.15	35.32	26.628	141.9	0.730
450A	11.97	35.11	26.699	135.3	0.805
500A	10.85	34.94	26.775	128.6	0.876
550A	9.67	34.77	26.848	121.1	0.944
600A	8.54	34.65	26.937	112.7	1.008
650A	7.73	34.57	26.997	107.0	1.069
700A	6.61	34.45	27.060	101.0	1.126
750A	5.93	34.37	27.086	98.6	1.181
800A	5.29	34.33	27.133	94.1	1.234
850A	4.75	34.30	27.171	90.5	1.285
900A	4.32	34.30	27.218	86.0	1.333
950A	4.07	34.31	27.253	82.6	1.380
1000A	3.85	34.32	27.283	79.9	1.425
1100A	3.48	34.35	27.364	74.1	1.510
1200A	3.23	34.40	27.408	68.1	1.590
1300A	3.06	34.47	27.479	61.3	1.663
1400A	3.05	34.54	27.536	55.9	1.731
1500A	3.13	34.64	27.608	49.1	1.794
1600A	3.24	34.70	27.645	45.5	1.853
1700A	3.45	34.77	27.681	42.2	1.909
1800A	3.60	34.84	27.722	38.5	1.964
1900A	3.52	34.89	27.769	33.8	2.015
2000A	3.52	34.91	27.785	32.3	2.065
2100A	3.57	34.94	27.804	30.5	2.113
2200A	3.44	34.94	27.817	29.3	2.161
2300A	3.33	34.94	27.828	28.3	2.208
2400A	3.25	34.94	27.835	27.5	2.254
2500A	3.15	34.94	27.845	26.6	2.299
2600A	3.07	34.93	27.844	26.7	2.345
2700A	2.96	34.93	27.855	25.7	2.389
2800A	2.90	34.92	27.852	26.0	2.434
2900A	2.77	34.92	27.864	24.6	2.478
3000A	2.61	34.90	27.862	23.0	2.522
3100A	2.33	34.86	27.870	24.3	2.564
3200A	1.96	34.84	27.864	24.4	2.603
3270A	1.95	34.83	27.861	25.1	2.631

## RV MELVILLE

## CATO EXPEDITION VI

29

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 19.1S		43 59.6W		11/23/72		0315 0457		GMT	3439M	060	7KT	1	190 10		
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	SIGT	DT	DD
0	19.99	36.142	5.38	0.02	1.0	0.00	0.0	234.5	0	19.99	36.142	5.38	25.652	234.5	0.000
41	18.87	36.037	5.53	0.03	1.0	0.00	0.0	214.6	10	19.72	36.114	5.42	25.704	229.6	0.023
51A	18.18	35.996	5.50	0.08	1.2	0.00	0.0	200.4	20	19.44	36.087	5.45	25.756	224.7	0.046
63	17.86	36.003	5.58	0.04	1.2	0.00	0.1	192.4	30	19.17	36.062	5.49	25.807	219.8	0.068
104	16.98	35.910	5.16	0.17	1.6	0.04	1.9	179.3	50	18.24	35.998	5.50	25.993	202.2	0.111
131	16.36	35.819	5.16	0.26	1.5	0.03	3.0	172.0	75	17.59	35.987	5.49	26.146	187.6	0.160
155A	15.77	35.709	5.06	0.36	1.8	0.02	3.9	167.1	100	17.06	35.923	5.21	26.226	180.1	0.207
258A	14.56	35.536	5.07	0.58	2.3	0.01	6.3	154.2	125	16.50	35.840	5.16	26.295	175.5	0.252
									150	15.89	35.731	5.08	26.353	168.0	0.296
									200	14.98	35.576	5.06	26.439	159.9	0.380
									250	14.58	35.533	5.07	26.493	154.7	0.462

## RV MELVILLE

## CATO EXPEDITION VI

30

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 16.2S		41 39.5W		11/23/72		1806 2010		GMT	3829M	320	8KT	1	180 5 9		
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	SIGT	DT	DD
0	20.35	36.093	5.26	0.05	1.0	0.00	0.0	247.2	0	20.35	36.093	5.26	25.519	247.2	0.000
41	19.73	36.071	5.32	0.03	0.8	0.00	0.0	233.2	10	20.31	36.088	5.30	25.526	246.5	0.025
73	18.17	35.941	5.38	0.07	1.0	0.00	0.0	204.6	20	20.20	36.082	5.32	25.551	244.2	0.049
114	17.48	35.882	5.32	0.12	1.0	0.07	0.2	192.8	30	20.02	36.079	5.32	25.597	239.8	0.074
157	16.76	35.766	5.05	0.29	1.5	0.04	1.8	184.8	50	19.30	36.034	5.34	25.753	225.0	0.120
207A	16.14	35.746	5.21	0.27	1.4	0.02	2.2		75	18.12	35.936	5.38	25.977	203.7	0.175
219	15.72	35.664	5.08	0.33	1.6	0.01	3.1	169.3	100	17.63	35.898	5.34	26.068	195.0	0.225
310A	14.73	35.548	5.08	0.48	2.2	0.01	5.4	156.8	125	17.30	35.852	5.25	26.115	190.6	0.274
413A	13.62	35.383	5.02	0.55	3.0		8.3	146.5	150	16.88	35.784	5.09	26.163	186.0	0.322
517A	11.31	35.010	4.83	0.98	5.4		14.0	130.8	200	16.02	35.689	5.07	26.290	174.0	0.415
620A	8.53	34.659	4.85	1.47	9.8		20.5	111.8	250	15.35	35.623	5.08	26.393	164.2	0.503
722A	6.74	34.462	5.10	1.60	13.4		23.3	101.8	300	14.62	35.560	5.08	26.460	157.8	0.588
825A	5.32	34.340	5.29	1.80	17.3	0.02	26.3	93.7	400	13.79	35.411	5.03	26.566	147.8	0.751
1031A	3.87	34.291	5.26	2.03	29.2	0.02	29.0	82.2	500	11.75	35.076	4.86	26.715	133.7	0.904
1236A	3.15	34.389	4.74	2.23	45.8	0.01	32.2	68.2	600	9.05	34.718	4.85	26.909	115.3	1.040
1441A	2.89	34.530	4.42	2.22	57.2		32.2	55.3	700	7.07	34.497	5.04	27.034	103.5	1.161
1607A	2.83	34.649	4.52	2.10	58.1		30.4	45.8	800	5.63	34.364	5.25	27.118	95.5	1.271
1955A	3.24	34.858	5.31	1.55	38.0		23.2	33.6	1000	4.01	34.288	5.26	27.241	83.9	1.469
2262A	3.11	34.905	5.57	1.49	32.6		21.9	28.9	1200	3.23	34.367	4.84	27.380	70.7	1.641
2469A	3.05	34.917	5.85	1.43	32.4	0.01	21.0	27.5	1500	2.87	34.569	4.45	27.574	52.4	1.853
2674A	3.00	34.929	5.79	1.33	30.2		20.4	26.2	1750	2.96	34.726	4.77	27.691	41.2	1.997
2880A	2.498	34.929	5.82	1.57	31.9		20.5	25.3	2000	3.24	34.870	5.36	27.782	32.6	2.124
3085A	2.754	34.922	5.87	1.38	33.7		20.6	24.6	2250	3.12	34.904	5.56	27.820	29.0	2.240
3396A	2.331	34.885	5.73	1.45	47.5		22.0	23.9	2500	3.04	34.918	5.84	27.838	27.3	2.354
3706A	1.133	34.759	5.18	1.99	96.2		28.4	24.8	2750	2.97	34.929	5.79	27.854	25.8	2.466
3809A	0.899	34.735	5.15	2.08	109.1	0.01	29.2	25.2	3000	2.82	34.925	5.85	27.864	24.8	2.578
									3250	2.59	34.908	5.80	27.871	24.1	2.688
									3500	1.93	34.840	5.53	27.871	24.1	2.791
									3750	1.02	34.748	5.17	27.863	25.0	2.861

29 STD						CATO EXPEDITION VI						30 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
10 19.15	43 59.6W	11/23/72	0158 GMT			30 16.25	41 39.5W	11/23/72	1622 GMT			30 16.25	41 39.5W	11/23/72	1622 GMT		
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.98	36.14	25.654	234.4	0.000	0	20.17	36.07	25.550	244.3	0.000	0	20.17	36.07	25.550	244.3	0.000
10	19.98	36.14	25.654	234.4	0.023	10	19.88	36.10	25.650	235.6	0.024	10	19.88	36.10	25.650	235.6	0.024
20	19.78	36.13	25.699	230.1	0.047	20	19.75	36.10	25.673	232.6	0.047	20	19.75	36.10	25.673	232.6	0.047
30	19.77	36.13	25.701	229.9	0.070	30	19.76	36.09	25.673	232.5	0.071	30	19.76	36.09	25.673	232.5	0.071
40	19.76	36.14	25.712	228.9	0.093	40	19.74	36.09	25.679	232.0	0.094	40	19.74	36.09	25.679	232.0	0.094
50	19.05	36.03	25.812	219.3	0.115	50	19.69	36.08	25.684	231.5	0.117	50	19.69	36.08	25.684	231.5	0.117
60	17.98	35.96	26.029	198.8	0.137	60	18.07	36.03	25.807	219.6	0.140	60	18.07	36.03	25.807	219.6	0.140
70	17.77	35.99	26.104	191.7	0.156	70	18.56	35.98	25.894	211.6	0.162	70	18.56	35.98	25.894	211.6	0.162
80	17.49	35.97	26.157	186.6	0.176	80	18.33	35.91	25.904	210.7	0.183	80	18.33	35.91	25.904	210.7	0.183
90	17.42	35.97	26.174	185.0	0.194	90	18.06	35.92	25.978	203.6	0.204	90	18.06	35.92	25.978	203.6	0.204
100	17.30	35.97	26.203	182.2	0.213	100	17.98	35.91	25.991	202.4	0.225	100	17.98	35.91	25.991	202.4	0.225
125	16.41	35.80	26.294	174.5	0.259	125	17.54	35.88	26.076	194.3	0.276	125	17.54	35.88	26.076	194.3	0.276
150	16.16	35.79	26.335	169.7	0.303	150	17.03	35.83	26.161	186.3	0.324	150	17.03	35.83	26.161	186.3	0.324
200	15.33	35.67	26.432	160.5	0.388	200	16.30	35.75	26.272	175.7	0.438	200	16.30	35.75	26.272	175.7	0.438
250	14.81	35.59	26.486	155.4	0.470	250	16.36	35.62	26.387	168.8	0.506	250	16.36	35.62	26.387	168.8	0.506
300	14.26	35.51	26.543	150.0	0.551	300	14.77	35.53	26.446	159.0	0.591	300	14.77	35.53	26.446	159.0	0.591
350	13.42	35.36	26.604	144.2	0.629	350	14.33	35.52	26.536	150.7	0.674	350	14.33	35.52	26.536	150.7	0.674
400	12.40	35.18	26.670	138.0	0.705	400	13.82	35.42	26.567	147.7	0.734	400	13.82	35.42	26.567	147.7	0.734
450	11.49	35.04	26.735	131.8	0.777	450	13.10	35.31	26.631	141.7	0.832	450	13.10	35.31	26.631	141.7	0.832
500	10.25	34.87	26.827	123.1	0.847	500	12.07	35.14	26.703	134.9	0.907	500	12.07	35.14	26.703	134.9	0.907
550	9.01	34.70	26.902	116.0	0.912	550	10.78	34.95	26.796	126.1	0.979	550	10.78	34.95	26.796	126.1	0.979
600	7.91	34.58	26.978	108.6	0.975	600	9.35	34.74	26.881	118.0	1.046	600	9.35	34.74	26.881	118.0	1.046
650	6.82	34.45	27.032	103.7	1.032	650	7.99	34.57	26.959	110.6	1.109	650	7.99	34.57	26.959	110.6	1.109
700	5.84	34.35	27.081	99.0	1.087	700	7.15	34.50	27.025	104.3	1.169	700	7.15	34.50	27.025	104.3	1.169
750	5.03	34.27	27.116	95.0	1.140	750	6.37	34.43	27.076	99.5	1.225	750	6.37	34.43	27.076	99.5	1.225
800	4.52	34.24	27.149	92.6	1.191	800	5.62	34.36	27.117	95.7	1.279	800	5.62	34.36	27.117	95.7	1.279
850	4.21	34.26	27.198	87.9	1.240	850	5.08	34.33	27.157	91.8	1.331	850	5.08	34.33	27.157	91.8	1.331
900	3.98	34.26	27.222	85.6	1.286	900	4.60	34.29	27.180	89.6	1.381	900	4.60	34.29	27.180	89.6	1.381
950	3.71	34.26	27.250	83.1	1.334	950	4.33	34.29	27.210	86.9	1.429	950	4.33	34.29	27.210	86.9	1.429
1000	3.49	34.29	27.295	78.7	1.378	1000	4.01	34.29	27.243	83.7	1.477	1000	4.01	34.29	27.243	83.7	1.477
1100	3.20	34.34	27.363	72.3	1.461	1100	3.53	34.32	27.315	76.8	1.565	1100	3.53	34.32	27.315	76.8	1.565
1200	2.96	34.41	27.440	65.0	1.538	1200	3.24	34.39	27.399	68.9	1.647	1200	3.24	34.39	27.399	68.9	1.647
1300	2.95	34.48	27.497	59.6	1.608	1300	3.04	34.44	27.457	63.4	1.722	1300	3.04	34.44	27.457	63.4	1.722
1400	2.86	34.54	27.553	54.3	1.674	1400	2.96	34.50	27.512	58.2	1.792	1400	2.96	34.50	27.512	58.2	1.792
1500	2.86	34.61	27.609	49.0	1.735	1500	2.86	34.56	27.569	52.8	1.856	1500	2.86	34.56	27.569	52.8	1.856
1600	2.86	34.66	27.649	45.2	1.792	1600	2.83	34.61	27.611	48.8	1.917	1600	2.83	34.61	27.611	48.8	1.917
1700	2.97	34.73	27.694	40.9	1.846	1700	2.85	34.68	27.665	43.7	1.974	1700	2.85	34.68	27.665	43.7	1.974
1800	3.16	34.79	27.725	38.1	1.898	1800	2.82	34.74	27.711	39.4	2.027	1800	2.82	34.74	27.711	39.4	2.027
1900	3.35	34.87	27.770	33.7	1.948	1900	2.84	34.77	27.738	36.6	2.078	1900	2.84	34.77	27.738	36.6	2.078
2000	3.34	34.90	27.795	31.4	1.996	2000	3.15	34.86	27.781	32.7	2.126	2000	3.15	34.86	27.781	32.7	2.126
2100	3.35	34.94	27.826	28.5	2.043	2100	3.18	34.89	27.802	30.7	2.173	2100	3.18	34.89	27.802	30.7	2.173
2200	3.33	34.95	27.836	27.5	2.088	2200	3.08	34.89	27.812	29.8	2.219	2200	3.08	34.89	27.812	29.8	2.219
2300	3.27	34.95	27.841	27.0	2.132	2300	3.14	34.92	27.830	28.1	2.264	2300	3.14	34.92	27.830	28.1	2.264
2400	3.21	34.95	27.847	26.4	2.177	2400	3.05	34.92	27.838	27.3	2.309	2400	3.05	34.92	27.838	27.3	2.309
2500	3.16	34.95	27.852	26.0	2.222	2500	3.04	34.93	27.847	26.4	2.354	2500	3.04	34.93	27.847	26.4	2.354
2600	3.09	34.96	27.866	24.6	2.266	2600	3.01	34.93	27.850	26.2	2.398	2600	3.01	34.93	27.850	26.2	2.398
2700	3.03	34.95	27.864	24.8	2.309	2700	2.99	34.94	27.860	25.2	2.442	2700	2.99	34.94	27.860	25.2	2.442
2800	2.95	34.95	27.871	24.1	2.353	2800	2.96	34.94	27.863	25.0	2.486	2800	2.96	34.94	27.863	25.0	2.486
2900	2.90	34.94	27.868	24.4	2.397	2900	2.89	34.94	27.869	24.4	2.531	2900	2.89	34.94	27.869	24.4	2.531
3000	2.84	34.94	27.874	23.9	2.441	3000	2.84	34.93	27.866	24.7	2.575	3000	2.84	34.93	27.866	24.7	2.575
3100	2.76	34.93	27.873	24.0	2.485	3100	2.84	34.93	27.866	24.7	2.575	3100	2.84	34.93	27.866	24.7	2.575
3200	2.65	34.92	27.875	23.0	2.528	3200	2.75	34.92	27.866	24.7	2.619	3200	2.75	34.92	27.866	24.7	2.619
3300	2.45	34.91	27.864	22.9	2.571	3300	2.66	34.91	27.866	24.7	2.663	3300	2.66	34.91	27.866	24.7	2.663
3400	2.03	34.84	27.863	25.0	2.612	3400	2.54	34.90	27.868	24.4	2.707	3400	2.54	34.90	27.868	24.4	2.707
3500	1.72	34.82	27.871	24.2	2.651	3500	2.35	34.88	27.869	24.4	2.751	3500	2.35	34.88	27.869	24.4	2.751
3520	1.62	34.81	27.870	24.2	2.658	3520	1.98	34.84	27.867	24.6	2.792	3520	1.98	34.84	27.867	24.6	2.792
						3600	1.63	34.81	27.870	24.3	2.831	3600	1.63	34.81	27.870	24.3	2.831
						3700	1.19	34.75	27.853	25.9	2.867	3700	1.19	34.75	27.853	25.9	2.867
						3800	0.87	34.72	27.850	26.1	2.901	3800	0.87	34.72	27.850	26.1	2.901
						3834	0.86	34.72	27.851	26.1	2.912	3834	0.86	34.72	27.851	26.1	2.912

RV MELVILLE										CATO EXPEDITION VI							31
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
30 09.55		40 32.0W		11/24/72		0427 0639		4218M		330		15KT		1		190 10	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD		
0	19.33	36.015	5.34	0.03	1.0	0.00	0.0	227.3	0	19.33	36.015	5.34	25.729	227.3	0.000		
41	19.12	35.989	5.43	0.04	1.0	0.00	0.0	224.0	10	19.28	36.007	5.36	25.737	226.5	0.023		
73	18.43	35.975	5.49	0.04	1.0	0.00	0.0	208.4	20	19.23	36.001	5.39	25.745	225.7	0.045		
114	17.76	35.902	5.44	0.06	1.0	0.00	0.0	197.8	30	19.18	35.995	5.41	25.754	224.9	0.068		
157	17.27	35.881	5.32	0.14	1.0	0.09	0.6	188.0	50	18.94	35.985	5.45	25.807	219.9	0.113		
209A	16.11	35.716	5.17	0.20	1.5	0.02	2.2	174.0	75	18.39	35.970	5.49	25.935	207.7	0.167		
218	15.92	35.694	5.20	0.30	1.5	0.01	2.6	171.5	100	17.96	35.926	5.46	26.008	200.8	0.219		
311A	14.91	35.566	5.05	0.48	1.9	0.01	5.1	159.3	125	17.64	35.898	5.41	26.065	195.3	0.269		
413A	13.79	35.408	5.03	0.57	2.6		7.7	148.0	150	17.36	35.885	5.34	26.125	189.6	0.318		
516A	11.89	35.099	4.89	0.95	4.8		12.7	134.6	200	16.33	35.746	5.18	26.263	176.6	0.413		
617A	9.49	34.767	4.81	1.23	8.2		18.8	118.5	250	15.47	35.640	5.15	26.377	165.7	0.502		
719A	7.49	34.541	4.96	1.53	12.1		22.3	105.8	300	14.98	35.576	5.07	26.437	160.0	0.588		
921A	4.50	34.280	5.54	1.89	20.5		27.8	89.4	400	13.95	35.432	5.03	26.549	149.4	0.753		
1124A	3.56	34.299	5.16	2.09	33.7	0.01	30.8	78.7	500	12.23	35.152	4.91	26.682	136.9	0.908		
1327A	3.06	34.432	4.57	2.22	50.5		32.6	64.2	600	9.90	34.818	4.61	26.847	121.2	1.050		
1529A	2.87	34.559	4.41	2.15	57.5		31.9	53.0	700	7.83	34.578	4.92	26.987	107.9	1.177		
1730A	2.86	34.682	4.59	2.01	56.9		30.0	43.6	800	6.09	34.402	5.23	27.090	98.2	1.291		
2034A	3.07	34.832	5.18	1.66	43.6		24.7	34.1	1000	3.99	34.269	5.46	27.228	85.1	1.494		
2336A	3.21	34.928	5.73	1.38	28.6		21.0	28.1	1200	3.33	34.344	4.93	27.353	73.3	1.670		
2538A	3.10	34.930	5.83	1.35	29.4	0.01	20.6	27.0	1500	2.88	34.542	4.43	27.552	54.4	1.889		
2841A	2.93	34.927	5.87	1.33	31.5		20.3	25.7	1750	2.87	34.694	4.62	27.674	42.8	2.037		
3146A	2.727	34.914	5.88	1.36	35.1		20.7	24.9	2000	3.04	34.817	5.11	27.758	34.9	2.167		
3450A	2.062	34.853	5.65	1.58	59.1		23.9	24.2	2250	3.19	34.908	5.60	27.816	29.4	2.286		
3757A	0.871	34.732	5.21	2.04	108.3		30.0	25.2	2500	3.13	34.930	5.62	27.840	27.1	2.401		
4063A	0.374	34.687	5.11	2.21	126.6		32.2	25.8	2750	2.98	34.927	5.86	27.851	26.0	2.514		
4166A	0.335	34.683	5.12	2.21	128.9	0.01	32.3	25.9	3000	2.86	34.923	5.88	27.859	25.3	2.626		
									3250	2.55	34.898	5.83	27.866	24.6	2.737		
									3500	1.86	34.831	5.57	27.869	24.3	2.840		
									3750	0.90	34.735	5.22	27.860	25.2	2.929		
									4000	0.42	34.693	5.13	27.855	25.7	3.004		

RV MELVILLE										CATO EXPEDITION VI							32
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
30 19.25		37 51.1W		11/24/72		2100 2245		3473M		310		12KT		1		310 3 5	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD		
0	20.47	36.168	5.27	0.05	1.4	0.00	0.0	244.8	0	20.47	36.168	5.27	25.544	244.8	0.000		
41	20.35	36.168	5.27	0.05	1.2	0.00	0.0	241.8	10	20.44	36.167	5.27	25.554	243.9	0.024		
62	20.31	36.165	5.27	0.05	1.0	0.00	0.0	241.0	20	20.40	36.167	5.27	25.562	243.1	0.049		
82A	19.51	36.172	5.30	0.07	1.3	0.00	0.0		30	20.38	36.167	5.27	25.570	242.4	0.073		
83	19.55	36.171	5.36	0.08	1.0	0.00	0.0	221.4	50	20.33	36.165	5.27	25.580	241.4	0.122		
126	19.35	36.164	5.28	0.08	0.8	0.00	0.0	217.0	75	19.86	36.166	5.29	25.707	229.3	0.181		
160A	17.98	35.932	5.09	0.20	1.3	0.05	0.7	200.8	100	19.46	36.164	5.33	25.809	219.7	0.238		
263A	15.34	35.590	5.01	0.39	1.7	0.01	4.4	166.6	125	19.35	36.162	5.28	25.836	217.1	0.294		
366A	14.04	35.441	5.03	0.61	2.8	0.01	7.3	150.6	150	18.43	36.004	5.15	25.953	206.0	0.348		
469A	12.31	35.160	4.88	0.86	4.3	0.01	11.7	137.8	200	16.74	35.755	5.06	26.173	185.1	0.449		
572A	9.95	34.822	4.75	1.24	7.4	0.01	17.5	121.8	250	15.57	35.613	5.02	26.334	169.8	0.541		
675A	7.75	34.575	4.82	1.59	12.6	0.01	23.0	106.9	300	14.82	35.535	5.02	26.442	159.6	0.628		
778A	5.89	34.397	5.06	1.69U	16.8	0.01	26.4	96.1	400	13.53	35.359	4.99	26.581	146.4	0.791		
881A	4.70	34.299	5.2	1.95	21.5	0.01	28.2	90.0	500	11.62	35.055	4.83	26.721	133.1	0.942		
1086A	3.51	34.328	4.99	2.12	36.9	0.01	31.6	76.1	600	9.33	34.747	4.77	26.887	117.5	1.080		
1290A	3.01	34.446	4.53	2.22	51.2	0.00	33.1	62.7	700	7.25	34.525	4.88	27.030	103.9	1.202		
1496A	2.86	34.580	4.41	2.15	57.7	0.01	31.9	51.3	800	5.59	34.370	5.10	27.127	94.6	1.312		
1701A	2.82	34.692	4.62	2.03	56.8	0.01	29.5	42.5	1000	3.87	34.294	5.08	27.260	82.0	1.507		
2008A	2.89	34.814	5.10	1.74	47.1	0.00	25.9	33.9	1200	3.17	34.389	4.73	27.404	68.4	1.674		
2316A	2.921	34.882	5.54	1.51	38.4	0.00	22.7	29.0	1500	2.86	34.584	4.41	27.587	51.1	1.881		
2522A	2.925	34.910	5.73	1.41	34.0	0.00	21.3	26.9	1750	2.83	34.716	4.69	27.695	40.8	2.022		
2727A	2.846	34.918	5.78	1.40	33.5	0.00	21.1	25.6	2000	2.89	34.811	5.09	27.767	34.0	2.147		
3036A	2.72	34.911	5.85	1.40	35.5	0.01	21.0	25.1	2250	2.92	34.671	5.46	27.812	29.8	2.263		
3347A	2.501	34.897	5.86	1.44	41.2		21.5	24.3	2500	2.92	34.907	5.72	27.840	27.1	2.375		
3451A	2.235	34.874	5.78	1.51	49.7	0.00	22.6	24.0	2750	2.84	34.917	5.79	27.856	25.6	2.485		
									3000	2.74	34.911	5.84	27.861	25.1	2.595		
									3250	2.57	34.901	5.86	27.867	24.6	2.704		
									3500	2.21	34.872	5.77	27.874	23.9	2.811		

(1) ALTERNATE VALUE: 34.409 PPT.



31 STD						CATO EXPEDITION VI						32 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 09.5S	40 32.0W	11/24/72	0753 GMT			30 19.2S	37 51.1W	11/24/72	1938 GMT			30 19.2S	37 51.1W	11/24/72	1938 GMT		
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.60	36.06	25.693	230.7	0.000	0	20.65	36.18	25.505	248.6	0.000	0	20.65	36.18	25.505	248.6	0.000
10	19.52	36.04	25.750	225.2	0.023	10	20.44	36.18	25.561	243.2	0.025	10	20.44	36.18	25.561	243.2	0.025
20	19.29	36.03	25.750	225.2	0.045	20	20.38	36.18	25.577	241.7	0.049	20	20.38	36.18	25.577	241.7	0.049
30	19.21	36.03	25.771	223.3	0.068	30	20.36	36.18	25.577	241.7	0.073	30	20.36	36.18	25.577	241.7	0.073
40	19.17	36.03	25.781	222.3	0.090	40	20.36	36.18	25.583	241.2	0.097	40	20.36	36.18	25.583	241.2	0.097
50	19.14	36.02	25.782	222.3	0.113	50	20.36	36.18	25.583	241.2	0.122	50	20.36	36.18	25.583	241.2	0.122
60	18.78	35.95	25.851	215.7	0.135	60	20.11	36.18	25.649	234.8	0.146	60	20.11	36.18	25.649	234.8	0.146
70	18.36	35.99	25.957	205.6	0.156	70	19.67	36.18	25.766	223.8	0.169	70	19.67	36.18	25.766	223.8	0.169
80	18.30	35.98	25.964	204.9	0.177	80	19.58	36.18	25.789	221.5	0.191	80	19.58	36.18	25.789	221.5	0.191
90	18.12	35.97	26.002	201.4	0.197	90	19.50	36.18	25.810	219.5	0.214	90	19.50	36.18	25.810	219.5	0.214
100	17.94	35.95	26.031	198.6	0.218	100	19.45	36.17	25.816	219.0	0.236	100	19.45	36.17	25.816	219.0	0.236
125	17.71	35.93	26.073	194.6	0.268	125	19.32	36.15	25.834	217.3	0.292	125	19.32	36.15	25.834	217.3	0.292
150	17.41	35.91	26.130	189.1	0.317	150	18.47	36.20	26.090	193.0	0.344	150	18.47	36.20	26.090	193.0	0.344
200	16.29	35.74	26.267	176.2	0.411	200	16.49	35.73	26.212	181.4	0.441	200	16.49	35.73	26.212	181.4	0.441
250	15.61	35.67	26.369	166.5	0.501	250	15.34	35.99	26.368	166.6	0.531	250	15.34	35.99	26.368	166.6	0.531
300	14.96	35.59	26.453	158.6	0.586	300	14.57	35.77	26.446	159.2	0.617	300	14.57	35.77	26.446	159.2	0.617
350	14.47	35.53	26.513	152.6	0.669	350	14.07	35.41	26.507	153.5	0.700	350	14.07	35.41	26.507	153.5	0.700
400	13.92	35.44	26.561	148.2	0.749	400	13.32	35.28	26.563	148.2	0.780	400	13.32	35.28	26.563	148.2	0.780
450	13.17	35.30	26.609	143.8	0.828	450	12.42	35.13	26.627	142.0	0.859	450	12.42	35.13	26.627	142.0	0.859
500	12.25	35.15	26.679	137.1	0.905	500	11.51	34.95	26.693	135.8	0.934	500	11.51	34.95	26.693	135.8	0.934
550	11.02	34.96	26.760	129.5	0.978	550	10.21	34.81	26.787	126.9	1.006	550	10.21	34.81	26.787	126.9	1.006
600	9.99	34.81	26.824	123.3	1.048	600	9.09	34.67	26.865	119.4	1.073	600	9.09	34.67	26.865	119.4	1.073
650	8.71	34.68	26.934	113.0	1.113	650	7.95	34.53	26.933	113.0	1.137	650	7.95	34.53	26.933	113.0	1.137
700	7.84	34.56	26.973	109.3	1.175	700	6.96	34.44	27.005	106.3	1.198	700	6.96	34.44	27.005	106.3	1.198
750	6.91	34.42	26.996	107.1	1.235	750	6.21	34.36	27.058	101.2	1.255	750	6.21	34.36	27.058	101.2	1.255
800	6.10	34.36	27.056	101.4	1.292	800	5.46	34.31	27.097	97.6	1.310	800	5.46	34.31	27.097	97.6	1.310
850	5.34	34.33	27.127	94.7	1.347	850	4.89	34.28	27.140	93.5	1.362	850	4.89	34.28	27.140	93.5	1.362
900	4.72	34.27	27.151	92.4	1.398	900	4.57	34.27	27.168	90.8	1.413	900	4.57	34.27	27.168	90.8	1.413
950	4.32	34.26	27.203	87.5	1.448	950	4.13	34.26	27.207	87.1	1.462	950	4.13	34.26	27.207	87.1	1.462
1000	4.07	34.27	27.221	85.8	1.496	1000	3.89	34.29	27.256	82.5	1.508	1000	3.89	34.29	27.256	82.5	1.508
1100	3.66	34.30	27.287	79.6	1.587	1100	3.45	34.30	27.307	77.6	1.597	1100	3.45	34.30	27.307	77.6	1.597
1200	3.24	34.33	27.351	73.5	1.672	1200	3.17	34.35	27.373	71.3	1.680	1200	3.17	34.35	27.373	71.3	1.680
1300	3.09	34.41	27.429	66.1	1.751	1300	3.00	34.41	27.437	65.3	1.756	1300	3.00	34.41	27.437	65.3	1.756
1400	2.97	34.49	27.503	59.0	1.822	1400	2.92	34.50	27.516	57.8	1.827	1400	2.92	34.50	27.516	57.8	1.827
1500	2.97	34.56	27.559	53.7	1.886	1500	2.87	34.55	27.560	53.6	1.892	1500	2.87	34.55	27.560	53.6	1.892
1600	2.84	34.61	27.611	48.9	1.950	1600	2.83	34.61	27.611	48.8	1.953	1600	2.83	34.61	27.611	48.8	1.953
1700	2.86	34.67	27.657	44.5	2.007	1700	2.82	34.67	27.660	44.1	2.010	1700	2.82	34.67	27.660	44.1	2.010
1800	2.89	34.72	27.694	41.0	2.062	1800	2.84	34.72	27.698	40.5	2.064	1800	2.84	34.72	27.698	40.5	2.064
1900	2.95	34.78	27.736	37.0	2.113	1900	2.87	34.77	27.735	37.0	2.115	1900	2.87	34.77	27.735	37.0	2.115
2000	3.04	34.83	27.768	34.0	2.162	2000	2.90	34.80	27.757	35.0	2.164	2000	2.90	34.80	27.757	35.0	2.164
2100	3.20	34.88	27.792	31.6	2.210	2100	2.91	34.83	27.780	32.6	2.212	2100	2.91	34.83	27.780	32.6	2.212
2200	3.22	34.91	27.814	29.5	2.257	2200	2.90	34.84	27.788	32.0	2.259	2200	2.90	34.84	27.788	32.0	2.259
2300	3.24	34.92	27.820	29.0	2.303	2300	2.94	34.87	27.809	30.1	2.305	2300	2.94	34.87	27.809	30.1	2.305
2400	3.17	34.93	27.835	27.6	2.349	2400	2.96	34.90	27.831	28.0	2.351	2400	2.96	34.90	27.831	28.0	2.351
2500	3.13	34.93	27.839	27.2	2.395	2500	2.93	34.90	27.833	27.7	2.395	2500	2.93	34.90	27.833	27.7	2.395
2600	3.04	34.93	27.847	26.4	2.440	2600	2.92	34.90	27.834	27.6	2.440	2600	2.92	34.90	27.834	27.6	2.440
2700	3.01	34.93	27.850	26.2	2.485	2700	2.88	34.91	27.846	26.5	2.485	2700	2.88	34.91	27.846	26.5	2.485
2800	2.94	34.93	27.856	25.5	2.530	2800	2.84	34.91	27.850	26.2	2.530	2800	2.84	34.91	27.850	26.2	2.530
2900	2.88	34.92	27.854	25.8	2.575	2900	2.79	34.91	27.854	25.6	2.575	2900	2.79	34.91	27.854	25.6	2.575
3000	2.82	34.92	27.859	25.3	2.620	3000	2.76	34.91	27.857	25.5	2.619	3000	2.76	34.91	27.857	25.5	2.619
3100	2.74	34.92	27.867	24.6	2.664	3100	2.67	34.91	27.865	24.8	2.664	3100	2.67	34.91	27.865	24.8	2.664
3200	2.67	34.92	27.873	24.0	2.708	3200	2.60	34.91	27.871	24.2	2.707	3200	2.60	34.91	27.871	24.2	2.707
3300	2.54	34.90	27.868	24.4	2.752	3300	2.53	34.91	27.877	23.6	2.750	3300	2.53	34.91	27.877	23.6	2.750
3400	2.35	34.88	27.869	24.4	2.795	3400	2.43	34.89	27.870	24.3	2.793	3400	2.43	34.89	27.870	24.3	2.793
3500	1.86	34.84	27.876	23.7	2.836	3456	2.22	34.87	27.871	24.1	2.817						
3600	1.45	34.79	27.867	24.6	2.873												
3700	1.16	34.75	27.855	25.7	2.908												
3800	0.77	34.72	27.857	25.5	2.941												
3900	0.56	34.70	27.853	25.8	2.971												
4000	0.45	34.69	27.852	26.0	3.000												
4100	0.34	34.68	27.850	26.2	3.028												
4200	0.32	34.68	27.851	26.0	3.056												

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 30 26.5S		LONGITUDE 35 19.6w		MO/DAY/YR 11/25/72		MESSENGER 1150		TIME GMT		BOTTOM 1413M		WIND 200		SPEED 11KT		WEATHER 1		DOMINANT WAVES 240 6	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD				
0	19.59	36.029	5.38	0.04	1.0	0.00	0.0	232.7	0	19.59	36.029	5.38	25.672	232.7	0.000				
11	19.47	36.027	5.36	0.05	1.0	0.00	0.0	229.9	10	19.48	36.025	5.36	25.699	230.1	0.025				
33	19.46	36.052	5.46	0.08	1.0	0.00	0.0	227.8	20	19.47	36.036	5.39	25.710	229.1	0.046				
54	18.48	35.961	5.49	0.09	1.0	0.00	0.0	210.6	30	19.46	36.047	5.44	25.720	228.1	0.069				
75	17.76	35.872	5.48	0.11	1.0	0.00	0.0	200.0	50	18.69	35.980	5.49	25.867	214.2	0.114				
127	16.63	35.769	5.28	0.20	1.4		1.4	181.7	75	17.76	35.672	5.46	26.016	200.0	0.166				
179	15.79	35.673	5.19	0.30	1.5		2.5	170.2	100	17.14	35.811	5.39	26.121	190.1	0.215				
232	14.99	35.581	5.15	0.43	1.7		4.4	159.8	125	16.66	35.770	5.29	26.203	182.2	0.263				
283	14.40	35.509	5.18	0.48	2.2	0.01	5.8	152.9	150	16.24	35.725	5.23	26.268	176.1	0.309				
387	13.33	35.340	5.11	0.65	3.0	0.01	8.6	143.9	200	15.46	35.634	5.17	26.376	165.8	0.397				
490	11.17	34.991	4.87	1.02	5.3	0.01	14.3	129.8	250	14.77	35.554	5.16	26.468	157.1	0.481				
593	9.11	34.712	4.96	1.33	8.1		19.1	116.6	300	14.26	35.489	5.17	26.528	151.4	0.562				
695	6.70	34.449	5.11	1.62	12.2		23.3	102.2	400	13.08	35.298	5.08	26.624	142.3	0.719				
797	5.42	34.333	5.39	1.78	15.4		25.9	95.4	500	10.98	34.963	4.88	26.770	126.5	0.866				
899	4.61	34.310	5.22	1.93	21.6	0.01	28.0	88.3	600	8.93	34.691	4.97	26.907	115.6	1.000				
1001	4.02	34.296	5.21	2.02	27.6		29.4	83.1	700	6.62	34.441	5.13	27.052	101.8	1.119				
1104	3.611	34.325	4.98	2.08	33.4		31.0	77.2	800	5.39	34.332	5.39	27.122	95.2	1.228				
1207	3.311	34.367	4.77	2.18	42.2		31.6	71.1	1000	4.02	34.297	5.21	27.247	83.4	1.425				
1362	3.003	34.459	4.55	2.19	48.7		31.8	61.6	1200	3.33	34.365	4.78	27.369	71.7	1.597				
1414	2.985	34.465	4.61	2.21	51.5	0.01	32.3	61.0											

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 28 56.7S		LONGITUDE 33 51.5W		MO/DAY/YR 11/26/72		MESSENGER 0214 0437		TIME GMT		BOTTOM 5702M		WIND 34U		SPEED 16KT		WEATHER 1		DOMINANT WAVES 22U 6 3	
Z	T	S	Q2	P04	S103	N02	N03	DT	Z	T	S	Q2	S10T	DT	DD				
0	19.51	35.765	4.87	0.08	1.0	0.00	0.1	249.9	0	19.51	35.765	4.87	25.491	249.9	0.000				
31	19.05	35.761	5.16	0.07	0.8	0.00	0.0	238.4	10	19.42	35.757	4.95	25.510	248.1	0.025				
62	17.97	35.812	5.57	0.07	1.0	0.00	0.0	209.3	20	19.27	35.756	5.04	25.546	244.5	0.050				
103	17.18	35.828	5.24	0.13	1.0	0.01	0.6	189.8	30	19.05	35.759	5.15	25.605	239.0	0.074				
144	16.59	35.752	5.21	0.20	1.0	0.02	1.3	182.0	50	18.59	35.789	5.44	25.797	220.9	0.120				
161A	16.06	35.676	5.31	0.18	1.3	0.17	0.9	175.8	75	17.67	35.824	5.50	26.002	201.3	0.173				
185	15.77	35.641	5.29	0.22	1.2	0.10	1.5	172.1	100	17.22	35.828	5.28	26.114	190.7	0.223				
264A	14.53	35.520	5.10	0.48	2.0	0.02	5.6	154.8	125	16.91	35.802	5.22	26.168	185.5	0.271				
367A	13.57	35.384	5.09	0.57	2.7	0.03	7.8	145.4	150	16.40	35.723	5.25	26.229	179.8	0.318				
470A	11.16	34.986	4.78	1.04	5.9	0.01	14.5	130.0	200	15.53	35.616	5.26	26.345	168.7	0.408				
573A	8.67	34.671	4.71	1.37	10.3	0.01	20.8	113.0	250	14.75	35.540	5.13	26.461	157.8	0.493				
677A	6.43	34.447	4.90	1.67	16.0		24.8	99.0	300	14.23	35.489	5.10	26.533	151.0	0.574				
780A	5.06	34.343	5.08	1.89	21.7		28.0	90.6	400	12.88	35.264	4.99	26.639	140.9	0.730				
883A	4.26	34.315	5.06	1.98	28.2	0.03	29.2	84.3	500	10.42	34.884	4.76	26.807	125.0	0.874				
1088A	3.32	34.388	4.67	2.13	45.1	0.03	32.0	69.8	600	8.03	34.602	4.75	26.976	109.0	1.002				
1292A	2.98	34.516	4.41	2.17	56.4	0.02	32.5	57.1	700	6.06	34.416	4.95	27.105	96.8	1.115				
1498A	2.83	34.641	4.50	2.02	58.1	0.02	30.8	46.4	800	4.87	34.334	5.08	27.183	89.3	1.217				
1702A	2.80	34.731	4.80	1.88	55.2		27.50	39.4	1000	3.63	34.345	4.86	27.324	76.1	1.399				
2009A	2.79	34.821	5.22	1.67	47.7		27.70	32.5	1200	3.08	34.456	4.50	27.465	62.6	1.554				
2316A	2.85	34.880	5.56	1.49	38.7	0.02	22.5	28.6	1500	2.83	34.643	4.50	27.637	46.3	1.744				
2521A	2.83	34.898	5.63	1.43	36.8	0.03	21.6	27.0	1750	2.80	34.749	4.87	27.724	38.1	1.876				
2726A	2.796	34.908	5.75	1.40	35.8	0.01	21.4	26.0	2000	2.79	34.819	5.21	27.781	32.6	1.995				
3035A	2.654	34.906	5.78	1.39	37.8		21.0	24.9	2250	2.84	34.870	5.50	27.818	29.2	2.107				
3345A	2.392	34.884	5.79	1.45	46.4		21.8	24.4	2500	2.83	34.896	5.67	27.839	27.1	2.217				
3657A	1.751	34.822	1.68		71.8		25.2	24.3	2750	2.79	34.908	5.75	27.853	25.9	2.327				
3761A	1.673	34.814	5.54	1.69	75.1	0.02	25.4	24.3	3000	2.68	34.906	5.78	27.862	25.0	2.436				
									3250	2.50	34.893	5.79	27.867	24.5	2.544				
									3500	2.06	34.850	5.73	27.869	24.4	2.648				
									3750	1.68	34.814	5.55	27.870	24.3	2.747				

33 STC						CATO EXPEDITION VI						34 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 26.5S	35 19.8W	11/25/72	1051 GMT			28 56.7S	33 51.5W	11/26/72	0042 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.42	36.04	25.724	227.7	0.000	0	19.57	35.80	25.502	248.6	0.000	0	19.57	35.80	25.502	248.6	0.000
10	19.42	36.05	25.732	227.0	0.023	10	19.53	35.79	25.505	248.6	0.025	10	19.53	35.79	25.505	248.6	0.025
20	19.40	36.04	25.730	227.2	0.046	20	19.11	35.77	25.599	239.7	0.049	20	19.11	35.77	25.599	239.7	0.049
30	19.41	36.05	25.735	226.7	0.063	30	19.04	35.76	25.609	238.7	0.073	30	19.04	35.76	25.609	238.7	0.073
40	19.42	36.06	25.740	226.3	0.091	40	18.95	35.76	25.632	236.5	0.097	40	18.95	35.76	25.632	236.5	0.097
50	19.35	36.05	25.750	225.3	0.114	50	18.38	35.76	25.776	222.8	0.120	50	18.38	35.76	25.776	222.8	0.120
60	18.30	35.95	25.942	207.1	0.136	60	18.14	35.77	25.851	215.6	0.142	60	18.14	35.77	25.851	215.6	0.142
70	17.96	35.88	25.973	204.1	0.156	70	17.86	35.81	25.944	206.9	0.164	70	17.86	35.81	25.944	206.9	0.164
80	17.57	35.84	26.038	197.9	0.177	80	17.52	35.79	26.012	200.4	0.184	80	17.52	35.79	26.012	200.4	0.184
90	17.39	35.83	26.074	194.5	0.197	90	17.33	35.83	26.089	193.1	0.204	90	17.33	35.83	26.089	193.1	0.204
100	17.17	35.83	26.127	189.4	0.216	100	17.17	35.83	26.127	189.4	0.224	100	17.17	35.83	26.127	189.4	0.224
125	16.65	35.77	26.205	182.1	0.264	125	16.84	35.78	26.168	185.6	0.272	125	16.84	35.78	26.168	185.6	0.272
150	16.29	35.74	26.267	176.2	0.309	150	16.52	35.71	26.190	183.5	0.319	150	16.52	35.71	26.190	183.5	0.319
200	15.56	35.63	26.350	168.4	0.398	200A	15.42	35.63	26.381	165.4	0.409	200A	15.42	35.63	26.381	165.4	0.409
250	14.95	35.58	26.447	159.1	0.484	250A	14.64	35.54	26.484	155.6	0.493	250A	14.64	35.54	26.484	155.6	0.493
300	14.35	35.50	26.516	152.5	0.566	300A	14.26	35.49	26.528	151.4	0.573	300A	14.26	35.49	26.528	151.4	0.573
350	13.93	35.46	26.575	147.0	0.645	350A	13.81	35.43	26.577	146.8	0.653	350A	13.81	35.43	26.577	146.8	0.653
400	13.25	35.31	26.600	144.6	0.723	400A	12.67	35.20	26.632	141.6	0.730	400A	12.67	35.20	26.632	141.6	0.730
450	11.84	35.08	26.700	135.1	0.799	450A	11.59	35.05	26.709	134.3	0.804	450A	11.59	35.05	26.709	134.3	0.804
500	10.98	34.96	26.767	128.8	0.871	500A	10.34	34.86	26.803	125.3	0.875	500A	10.34	34.86	26.803	125.3	0.875
550	9.95	34.77	26.801	125.6	0.940	550A	9.30	34.71	26.863	119.7	0.942	550A	9.30	34.71	26.863	119.7	0.942
600	8.71	34.64	26.903	115.9	1.006	600A	8.11	34.59	26.956	110.9	1.005	600A	8.11	34.59	26.956	110.9	1.005
650	7.53	34.50	26.971	109.4	1.068	650A	7.33	34.51	27.008	106.0	1.064	650A	7.33	34.51	27.008	106.0	1.064
700	6.46	34.43	27.065	100.6	1.126	700A	6.10	34.42	27.104	96.9	1.120	700A	6.10	34.42	27.104	96.9	1.120
750	5.54	34.34	27.111	96.2	1.180	750A	5.42	34.37	27.149	92.6	1.172	750A	5.42	34.37	27.149	92.6	1.172
800	5.17	34.30	27.123	95.0	1.232	800A	4.91	34.34	27.185	89.2	1.222	800A	4.91	34.34	27.185	89.2	1.222
850	4.81	34.31	27.173	90.4	1.283	850A	4.40	34.32	27.226	85.3	1.270	850A	4.40	34.32	27.226	85.3	1.270
900	4.55	34.31	27.201	87.6	1.332	900A	4.10	34.32	27.258	82.3	1.316	900A	4.10	34.32	27.258	82.3	1.316
950	4.32	34.31	27.226	85.3	1.380	950A	3.79	34.32	27.289	79.3	1.360	950A	3.79	34.32	27.289	79.3	1.360
1000	4.04	34.31	27.256	82.5	1.427	1000A	3.55	34.35	27.337	74.8	1.403	1000A	3.55	34.35	27.337	74.8	1.403
1100	3.63	34.33	27.313	77.0	1.515	1100A	3.29	34.41	27.410	67.9	1.482	1100A	3.29	34.41	27.410	67.9	1.482
1200	3.37	34.37	27.370	71.6	1.598	1200A	3.08	34.47	27.477	61.5	1.555	1200A	3.08	34.47	27.477	61.5	1.555
1300	3.14	34.42	27.432	65.8	1.676	1300A	2.97	34.52	27.527	56.8	1.622	1300A	2.97	34.52	27.527	56.8	1.622
1400	3.01	34.45	27.468	62.4	1.749	1400A	2.89	34.59	27.590	50.8	1.685	1400A	2.89	34.59	27.590	50.8	1.685
1429	2.94	34.47	27.490	60.3	1.770	1500A	2.85	34.64	27.634	46.7	1.743	1500A	2.85	34.64	27.634	46.7	1.743
						1600A	2.83	34.69	27.675	42.7	1.798	1600A	2.83	34.69	27.675	42.7	1.798
						1700A	2.80	34.73	27.710	39.4	1.850	1700A	2.80	34.73	27.710	39.4	1.850
						1800A	2.80	34.76	27.734	37.2	1.900	1800A	2.80	34.76	27.734	37.2	1.900
						1900A	2.78	34.79	27.759	34.7	1.948	1900A	2.78	34.79	27.759	34.7	1.948
						2000A	2.80	34.82	27.782	32.7	1.994	2000A	2.80	34.82	27.782	32.7	1.994
						2100A	2.81	34.83	27.789	32.0	2.040	2100A	2.81	34.83	27.789	32.0	2.040
						2200A	2.83	34.85	27.803	30.6	2.085	2200A	2.83	34.85	27.803	30.6	2.085
						2300A	2.84	34.87	27.818	29.2	2.130	2300A	2.84	34.87	27.818	29.2	2.130
						2400A	2.84	34.87	27.818	29.2	2.175	2400A	2.84	34.87	27.818	29.2	2.175
						2500A	2.85	34.90	27.841	27.0	2.220	2500A	2.85	34.90	27.841	27.0	2.220
						2600A	2.81	34.90	27.844	26.7	2.263	2600A	2.81	34.90	27.844	26.7	2.263
						2700A	2.80	34.90	27.845	26.6	2.307	2700A	2.80	34.90	27.845	26.6	2.307
						2800A	2.76	34.91	27.857	25.5	2.351	2800A	2.76	34.91	27.857	25.5	2.351
						2900A	2.72	34.91	27.860	25.2	2.395	2900A	2.72	34.91	27.860	25.2	2.395
						3000A	2.68	34.90	27.856	25.6	2.438	3000A	2.68	34.90	27.856	25.6	2.438
						3100A	2.65	34.90	27.859	25.3	2.483	3100A	2.65	34.90	27.859	25.3	2.483
						3200A	2.53	34.90	27.869	24.4	2.526	3200A	2.53	34.90	27.869	24.4	2.526
						3300A	2.47	34.89	27.866	24.6	2.569	3300A	2.47	34.89	27.866	24.6	2.569
						3400A	2.27	34.88	27.875	23.8	2.612	3400A	2.27	34.88	27.875	23.8	2.612
						3500A	2.13	34.86	27.871	24.2	2.653	3500A	2.13	34.86	27.871	24.2	2.653
						3600A	1.94	34.84	27.870	24.3	2.693	3600A	1.94	34.84	27.870	24.3	2.693
						3700A	1.72	34.82	27.871	24.2	2.732	3700A	1.72	34.82	27.871	24.2	2.732
						3787A	1.62	34.81	27.870	24.2	2.765	3787A	1.62	34.81	27.870	24.2	2.765

RV MELVILLE										CATC EXPEDITION V1						
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
30 56.2S		31 23.9W		11/26/72		215A 2354		GMT	4078M	040	35KT	2	040 14			
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S10T	DT	DD	
0	19.46	35.926	5.36	0.06	1.0	0.00	0.0	237.0	0	19.46	35.926	5.36	25.627	237.0	0.000	
31	19.49	35.921	5.36	0.05	0.8	0.00	0.0	238.1	10	19.47	35.923	5.36	25.623	237.3	0.024	
62	17.47	35.777	5.64	0.09	1.0	0.00	0.0	200.2	20	19.48	35.921	5.36	25.620	237.7	0.048	
94	16.88	35.772	5.51	0.13	1.0	0.00	0.0	187.1	30	19.49	35.920	5.36	25.616	238.0	0.071	
125	16.02	35.678	5.15	0.32	1.5	0.04	2.8	174.8	50	18.29	35.827	5.54	25.851	215.7	0.117	
144A	15.95	35.677	5.24	0.31	1.4	0.04	2.6		75	17.16	35.773	5.59	26.087	193.3	0.169	
154	15.44	35.607	5.10	0.40	1.6	0.01	3.8	167.5	100	16.71	35.755	5.44	26.179	184.5	0.217	
247A	14.34	35.435	5.05	0.56	2.1	0.02	6.2	157.1	125	16.02	35.678	5.15	26.281	174.8	0.262	
350A	13.53	35.365	5.04	0.63	2.7	0.02	8.2	146.0	150	15.51	35.615	5.11	26.350	168.3	0.306	
453A	11.53	35.041	4.85	1.02	5.0	0.01	13.4	132.4	200	14.80	35.510	5.08	26.426	161.1	0.391	
583A	8.53	34.649	4.83	1.41	9.7	0.01	21.0	112.6	250	14.32	35.433	5.05	26.471	156.8	0.474	
737A	5.68	34.367	5.20	1.79	16.2	0.01	26.0	95.8	300	13.97	35.409	5.04	26.527	151.5	0.555	
865A	4.32	34.270	5.45	1.95	22.4		28.0	88.3	400	12.65	35.221	4.95	26.652	139.7	0.711	
1070A	3.37	34.308	5.11	2.13	36.7		31.4	76.3	500	10.44	34.886	4.84	26.806	125.1	0.854	
1275A	3.02	34.435	4.56	2.19	51.2		32.0	63.6	600	8.16	34.608	4.86	26.961	110.3	0.983	
1480A	2.82	34.563	4.45	2.19	63.2		31.7	52.2	700	6.27	34.418	5.10	27.080	99.2	1.098	
1685A	2.79	34.688	4.56	2.00	58.6	0.01	29.6	42.5	800	4.92	34.308	5.35	27.158	91.7	1.202	
1992A	2.79	34.787	5.06	1.79	51.2		26.0	35.1	1000	3.58	34.280	5.29	27.278	80.4	1.391	
2301A	2.80	34.853	5.47	1.57	42.7		23.0	30.2	1200	3.10	34.384	4.75	27.406	68.2	1.556	
2506A	2.79	34.880	5.59	1.41	39.0		22.5	28.0	1500	2.82	34.578	4.45	27.586	51.2	1.761	
2712A	2.76	34.895	5.69	1.42	37.3		21.4	26.6	1750	2.79	34.716	4.65	27.699	40.5	1.902	
3021A	2.60	34.893	5.77	1.41	41.1	0.01	21.5	25.5	2000	2.79	34.789	5.07	27.758	34.9	2.027	
3331A	2.300	34.874	5.69	1.56	51.0		22.8	24.5	2250	2.80	34.644	5.42	27.801	30.8	2.143	
3642A	1.845	34.827	5.51	1.70	69.6		25.0	24.6	2500	2.79	34.879	5.59	27.830	28.1	2.256	
3954A	1.364	34.768	5.45	1.94	93.1		27.6	25.7	2750	2.75	34.895	5.71	27.846	26.5	2.366	
4058A	1.138	34.747	5.19	1.99	102.3	0.01	28.5	25.8	3000	2.62	34.893	5.77	27.857	25.5	2.476	
									3250	2.39	34.880	5.72	27.865	24.7	2.583	
									3500	2.06	34.849	5.60	27.867	24.5	2.687	
									3750	1.70	34.806	5.44	27.863	24.9	2.787	
									4000	1.27	34.759	5.24	27.855	25.7	2.881	

RV MELVILLE										CATO EXPEDITION V1						
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
32 39.2S		28 51.1W		11/27/72		1848		GMT	3479M	230	40KT	6	230 25			
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S1GT	DT	DD	
0	18.00	C	35.88	C				205.1	0	18.00	35.880		25.963	205.1	0.000	
60	18.00	C	35.88	C				205.1	10	18.00	35.879		25.963	205.1	0.021	
115	17.20		35.802		5.45	0.12	1.0	0.00	192.2	20	18.00	35.879		25.963	0.041	
216	15.08		35.561		5.25	0.37	1.6	0.02	3.7	163.2	30	18.00	35.879		0.062	
316	14.01		35.454		5.10	0.49	2.3	0.01	6.8	149.0	50	18.00	35.879		0.103	
415	12.44		35.185		4.99	0.83	3.6		14.6	138.4	75	17.73	35.852		0.154	
515	10.44		34.887		4.79	1.10	6.0		15.9	125.0	100	17.30	35.812		0.204	
614	8.11		34.594		4.82	1.45	10.1		20.2	110.6	125	17.02	35.775	5.43	0.253	
713	5.95		34.370		5.34	1.70	13.2		22.8	98.8	150	16.55	35.723	5.38	0.301	
813	4.95		34.296		5.46	1.81	17.5	0.02	25.1	92.9	200	15.46	35.601	5.28	0.392	
911	4.25		34.257		5.32	1.93	20.9		25.7	88.5	250	14.69	35.528	5.19	0.476	
1108	3.26		34.297		5.14	2.12	36.1		28.0	76.1	300	14.16	35.473	5.12	0.557	
1305	2.92		34.410		4.63	2.22	48.5		28.1	64.6	400	12.71	35.231	5.01	0.712	
1503	2.80		34.532		4.41	2.19	58.6		29.1	54.4	500	10.76	34.932	4.82	0.857	
1800	2.80		34.713		4.50	1.98	56.1		26.8	40.7	600	8.44	34.633	4.82	0.988	
2100	2.83		34.804		4.92	1.73	50.6	0.00	24.4	34.1	700	6.20	34.393	5.27	1.105	
2455	2.793		34.866		5.46	1.55	41.1		21.7	29.1	800	5.04	34.302	5.44	1.211	
2657	2.76		34.888		5.51	1.47	40.2		21.0	27.2	1000	3.73	34.261	5.25	1.405	
2812	2.670		34.888		5.63	1.46	41.4		21.0	26.4	1200	3.05	34.346	4.90	1.575	
3022	2.514		34.879		5.63	1.50	45.7		21.4	25.8	1500	2.80	34.531	4.41	1.789	
3341	2.150		34.845		5.56	1.61	59.2		22.7	25.5	1750	2.80	34.688	4.48	1.936	
3449	2.045		34.836		5.44	1.64	64.4	0.00	23.2	25.4	2000	2.82	34.780	4.76	2.064	
3500	2.01		34.832							25.4	2250	2.82	34.835	5.17	2.184	
											2500	2.79	34.872	5.50	2.298	
											2750	2.71	34.888	5.62	2.409	
											3000	2.53	34.880	5.63	2.518	
											3250	2.26	34.854	5.58	2.625	
											3500	2.01	34.832		2.729	

C) THESE VALUES HAVE BEEN ENTERED FROM THE STD AS NO HANSEN BOTTLES WERE PLACED ON THE WIRE ABOVE 115 METERS.



35 STD						CATO EXPEDITION VI						36 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
30 56.2S	31 23.9W	11/26/72	1955 GMT			32 39.2S	28 51.1W	11/27/72	1642 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	19.42	35.88	25.602	239.3	0.000	0	18.00	35.88	25.963	205.1	0.000	0	18.00	35.88	25.963	205.1	0.000
10	19.43	35.88	25.600	239.6	0.024	10	17.99	35.88	25.965	204.8	0.021	10	17.99	35.88	25.965	204.8	0.021
20	19.41	35.89	25.613	238.3	0.048	20	18.01	35.88	25.960	205.3	0.041	20	18.01	35.88	25.960	205.3	0.041
30	19.41	35.89	25.613	238.3	0.072	30	18.01	35.88	25.960	205.3	0.062	30	18.01	35.88	25.960	205.3	0.062
40	19.36	35.86	25.603	239.3	0.096	40	18.00	35.88	25.963	205.1	0.082	40	18.00	35.88	25.963	205.1	0.082
50	18.31	35.74	25.779	222.6	0.119	50	18.00	35.88	25.963	205.1	0.103	50	18.00	35.88	25.963	205.1	0.103
60	17.64	35.78	25.975	203.9	0.141	60	18.00	35.88	25.963	205.1	0.124	60	18.00	35.88	25.963	205.1	0.124
70	17.36	35.80	26.058	196.0	0.161	70	17.96	35.88	25.973	204.1	0.144	70	17.96	35.88	25.973	204.1	0.144
80	17.08	35.82	26.141	188.1	0.180	80	17.94	35.87	25.970	204.4	0.165	80	17.94	35.87	25.970	204.4	0.165
90	16.87	35.77	26.153	187.0	0.199	90	17.71	35.83	25.996	201.9	0.186	90	17.71	35.83	25.996	201.9	0.186
100	16.63	35.76	26.202	182.3	0.218	100	17.18	35.78	26.086	193.3	0.206	100	17.18	35.78	26.086	193.3	0.206
125	15.98	35.66	26.277	175.3	0.264	125	16.67	35.72	26.162	186.1	0.254	125	16.67	35.72	26.162	186.1	0.254
150	15.50	35.58	26.325	170.7	0.308	150	16.01	35.63	26.247	178.1	0.301	150	16.01	35.63	26.247	178.1	0.301
200A	15.08	35.58	26.418	161.8	0.394	200	15.20	35.57	26.384	165.1	0.389	200	15.20	35.57	26.384	165.1	0.389
250A	14.33	35.46	26.490	155.1	0.476	250	14.62	35.53	26.481	155.9	0.473	250	14.62	35.53	26.481	155.9	0.473
300A	14.17	35.47	26.532	151.1	0.557	300	14.26	35.46	26.520	152.2	0.554	300	14.26	35.46	26.520	152.2	0.554
350A	13.52	35.36	26.583	146.2	0.636	350	13.81	35.43	26.577	146.8	0.633	350	13.81	35.43	26.577	146.8	0.633
400A	12.71	35.22	26.639	140.9	0.713	400	13.23	35.31	26.604	144.2	0.711	400	13.23	35.31	26.604	144.2	0.711
450A	11.78	35.04	26.681	137.0	0.788	450	12.15	35.09	26.649	140.0	0.788	450	12.15	35.09	26.649	140.0	0.788
500A	10.41	34.85	26.783	127.2	0.859	500	10.95	34.92	26.741	131.2	0.862	500	10.95	34.92	26.741	131.2	0.862
550A	9.24	34.74	26.896	116.6	0.926	550	9.86	34.77	26.816	124.1	0.931	550	9.86	34.77	26.816	124.1	0.931
600A	8.29	34.55	26.898	116.4	0.990	600	8.85	34.64	26.881	118.0	0.998	600	8.85	34.64	26.881	118.0	0.998
650A	7.15	34.49	27.018	105.0	1.050	650	7.74	34.50	26.941	112.3	1.061	650	7.74	34.50	26.941	112.3	1.061
700A	6.38	34.41	27.059	101.1	1.107	700	6.73	34.43	27.028	104.0	1.120	700	6.73	34.43	27.028	104.0	1.120
750A	5.67	34.35	27.103	97.0	1.161	750	5.80	34.32	27.063	100.8	1.177	750	5.80	34.32	27.063	100.8	1.177
800A	4.84	34.27	27.137	93.7	1.213	800	5.19	34.28	27.105	96.8	1.231	800	5.19	34.28	27.105	96.8	1.231
850A	4.33	34.27	27.194	88.4	1.263	850	4.75	34.26	27.140	93.5	1.283	850	4.75	34.26	27.140	93.5	1.283
900A	4.09	34.28	27.227	85.2	1.311	900	4.31	34.27	27.196	88.2	1.333	900	4.31	34.27	27.196	88.2	1.333
950A	3.79	34.27	27.250	83.1	1.357	950	4.09	34.24	27.195	88.2	1.381	950	4.09	34.24	27.195	88.2	1.381
1000A	3.53	34.30	27.299	78.4	1.401	1000	3.84	34.26	27.237	84.3	1.428	1000	3.84	34.26	27.237	84.3	1.428
1100A	3.28	34.34	27.355	73.1	1.484	1100	3.34	34.29	27.310	77.4	1.517	1100	3.34	34.29	27.310	77.4	1.517
1200A	3.11	34.40	27.419	67.0	1.563	1200	3.09	34.34	27.378	71.4	1.600	1200	3.09	34.34	27.378	71.4	1.600
1300A	2.99	34.47	27.485	60.7	1.635	1300	2.93	34.40	27.435	65.5	1.676	1300	2.93	34.40	27.435	65.5	1.676
1400A	2.92	34.52	27.532	56.3	1.702	1400	2.83	34.48	27.508	58.6	1.747	1400	2.83	34.48	27.508	58.6	1.747
1500A	2.83	34.56	27.588	51.0	1.765	1500	2.78	34.54	27.560	53.6	1.812	1500	2.78	34.54	27.560	53.6	1.812
1600A	2.82	34.63	27.628	47.2	1.824	1600	2.77	34.61	27.617	48.3	1.873	1600	2.77	34.61	27.617	48.3	1.873
1700A	2.80	34.69	27.678	42.5	1.880	1700	2.77	34.65	27.649	45.2	1.930	1700	2.77	34.65	27.649	45.2	1.930
1800A	2.79	34.72	27.703	40.1	1.932	1800	2.78	34.70	27.688	41.5	1.984	1800	2.78	34.70	27.688	41.5	1.984
1900A	2.79	34.75	27.727	37.8	1.983	1900	2.79	34.74	27.719	38.6	2.036	1900	2.79	34.74	27.719	38.6	2.036
2000A	2.78	34.79	27.759	34.7	2.032	2000	2.81	34.77	27.741	36.5	2.087	2000	2.81	34.77	27.741	36.5	2.087
2100A	2.78	34.81	27.775	33.2	2.079	2100	2.82	34.80	27.764	34.3	2.135	2100	2.82	34.80	27.764	34.3	2.135
2200A	2.79	34.84	27.798	31.1	2.126	2200	2.81	34.83	27.789	32.0	2.183	2200	2.81	34.83	27.789	32.0	2.183
2300A	2.79	34.85	27.806	30.3	2.171	2300	2.82	34.84	27.796	31.3	2.229	2300	2.82	34.84	27.796	31.3	2.229
2400A	2.80	34.87	27.821	28.9	2.216	2400	2.80	34.86	27.813	29.6	2.275	2400	2.80	34.86	27.813	29.6	2.275
2500A	2.79	34.88	27.830	28.0	2.260	2500	2.80	34.87	27.821	28.9	2.320	2500	2.80	34.87	27.821	28.9	2.320
2600A	2.78	34.88	27.831	28.0	2.305	2600	2.78	34.89	27.839	27.2	2.365	2600	2.78	34.89	27.839	27.2	2.365
2700A	2.77	34.89	27.840	27.1	2.350	2700	2.73	34.89	27.844	26.8	2.409	2700	2.73	34.89	27.844	26.8	2.409
2800A	2.74	34.89	27.843	26.9	2.394	2800	2.68	34.89	27.848	26.4	2.453	2800	2.68	34.89	27.848	26.4	2.453
2900A	2.70	34.90	27.854	25.8	2.438	2900	2.60	34.89	27.855	25.7	2.496	2900	2.60	34.89	27.855	25.7	2.496
3000A	2.63	34.89	27.852	25.9	2.482	3000	2.53	34.88	27.853	25.9	2.539	3000	2.53	34.88	27.853	25.9	2.539
3100A	2.57	34.89	27.858	25.4	2.526	3100	2.46	34.88	27.859	25.3	2.582	3100	2.46	34.88	27.859	25.3	2.582
3200A	2.50	34.89	27.864	24.9	2.570	3200	2.39	34.87	27.857	25.5	2.625	3200	2.39	34.87	27.857	25.5	2.625
3300A	2.38	34.88	27.866	24.7	2.613	3300	2.20	34.85	27.857	25.5	2.668	3300	2.20	34.85	27.857	25.5	2.668
3400A	2.22	34.86	27.863	24.9	2.655	3400	2.09	34.84	27.858	25.4	2.709	3400	2.09	34.84	27.858	25.4	2.709
3500A	2.12	34.85	27.864	24.9	2.697	3484	2.00	34.83	27.857	25.5	2.744						
3600A	1.97	34.83	27.860	25.3	2.738												
3700A	1.76	34.81	27.860	25.2	2.778												
3800A	1.59	34.79	27.857	25.5	2.818												
3900A	1.45	34.78	27.859	25.3	2.856												
4000A	1.28	34.76	27.855	25.7	2.893												
4088A	1.08	34.73	27.845	26.7	2.924												

RV MELVILLE										CATO EXPEDITION VI										37
LATITUDE 32 27.9S		LONGITUDE 28 13.0W		MO/DAY/YR 11/28/72		MESSENGER 1015 1250		TIME GMT		BOTTOM 4085M		WIND 210		SPEED 17KT		WEATHER C		DOMINANT WAVES 200 10 5		
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD					
0	17.82	35.738	5.67	0.12	1.6	0.00	0.0	211.2	0	17.82	35.738	5.67	25.999	211.2	0.000					
41	17.73	35.760	5.53	0.11	1.2	0.00	0.0	207.5	10	17.80	35.733	5.61	25.901	210.9	0.021					
82	17.18	35.735	5.62	0.10	1.3	0.00	0.0	196.6	20	17.78	35.735	5.57	25.908	210.2	0.042					
124	16.13	35.656	5.41	0.21	1.6	0.06	1.0	178.8	30	17.75	35.743	5.54	25.920	209.2	0.063					
166	15.10	35.530	5.22	0.38	1.7	0.01	4.0	165.9	50	17.65	35.758	5.55	25.957	205.7	0.105					
207	14.59	35.486	5.14	0.47	2.1	0.00	5.3	158.5	75	17.31	35.742	5.61	26.028	198.9	0.156					
233A		35.506 V	5.13V	0.46	2.2	0.01	5.7		100	16.76	35.706	5.55	26.131	189.1	0.205					
336A	13.41	35.351	5.07	0.65	3.0	0.01	6.3	144.7	125	16.10	35.652	5.40	26.243	178.5	0.252					
439A	11.77	35.063	4.87	0.88	4.8	0.01	12.3	135.1	150	15.46	35.575	5.28	26.330	170.2	0.297					
542A	9.13	34.723	4.89	1.37	8.2	0.00	18.2	116.1	200	14.66	35.490	5.15	26.443	159.5	0.382					
645A	6.80	34.445	5.18	1.60	11.7	0.00	25.5	103.8	250	14.21	35.456	5.11	26.512	153.0	0.463					
749A	5.10	34.281	5.63	1.80	14.9	0.03	27.2	95.7	300	13.76	35.402	5.09	26.567	147.7	0.542					
851A	4.43	34.266	5.56	1.95	20.2	0.01	25.0U	89.7	400	12.49	35.185	4.94	26.657	139.2	0.695					
1057A	3.46	34.299	5.15	2.12	34.7	0.02	24.4U	77.8	500	10.25	34.857	4.88	26.817	124.0	0.838					
1261A	2.91	34.381	4.75	2.22	48.7	0.01	22.7U	66.7	600	7.76	34.555	5.03	26.961	108.5	0.965					
1466A	2.79	34.521	4.40	2.22	59.0	0.00	20.8U	55.1	700	5.80	34.342	5.44	27.080	99.1	1.078					
1671A	2.78	34.642	4.49	2.10	59.6	0.00	23.7U	45.9	800	4.70	34.265	5.60	27.149	92.6	1.183					
1979A	2.80	34.752	4.94	1.84	53.6	0.02	25.2	37.8	1000	3.68	34.284	5.28	27.271	81.0	1.373					
2286A	2.82	34.839	5.34	1.57	45.5	0.00	22.8	31.4	1200	3.03	34.352	4.87	27.387	70.0	1.540					
2492A	2.80	34.869	5.48	1.54	42.2	0.00	22.0	29.0	1500	2.79	34.544	4.41	27.562	53.4	1.751					
2697A	2.76	34.878	5.59	1.50	41.2	0.01	20.9	27.9	1750	2.78	34.676	4.59	27.668	43.4	1.897					
3007A	2.565	34.882	5.64	1.50	45.2	0.00	21.2	26.0	2000	2.80	34.759	4.97	27.733	37.3	2.028					
3316A	2.167	34.842	5.56	1.60	57.5	0.00	22.7	25.9	2250	2.82	34.831	5.30	27.788	32.0	2.150					
3626A	1.56	34.785	5.38	1.83	83.6	0.00	25.1	25.7	2500	2.80	34.869	5.49	27.821	28.9	2.265					
3937A	1.219	34.756	5.38U	1.98	96.4	0.00	25.0U	25.6	2750	2.74	34.879	5.60	27.835	27.6	2.377					
4041A	1.162	34.737	5.21	1.99	100.4	0.00	21.1U	26.7	3000	2.57	34.881	5.64	27.851	26.0	2.488					
									3250	2.27	34.852	5.59	27.853	25.9	2.596					
									3500	1.80	34.807	5.46	27.854	25.8	2.699					
									3750	1.39	34.771	5.32	27.855	25.7	2.795					
									4000	1.18	34.748	5.22	27.852	26.2	2.885					

RV MELVILLE										CATO EXPEDITION VI										38
LATITUDE 32 29.9S		LONGITUDE 26 29.2W		MO/DAY/YR 11/29/72		MESSENGER 005A 0307		TIME GMT		BOTTOM 4435M		WIND T60		SPEED 7KT		WEATHER 1		DOMINANT WAVES 240 3 5		
Z	T	S	02	P04	SI03	N02	N03	DT	Z	T	S	02	SI0T	DT	DD					
0	17.87	35.608	5.46	0.12	1.3	0.01	0.0	221.8	0	17.87	35.608	5.46	25.787	221.8	0.000					
21	17.84	35.619	5.53	0.10	1.0	0.00	0.0	220.3	10	17.86	35.612	5.50	25.794	221.1	0.022					
41	17.75	35.615	5.54	0.10	1.0	0.00	0.0	218.5	20	17.84	35.617	5.53	25.802	220.4	0.044					
62	16.90	35.664	5.56	0.17	1.2	0.00	0.0	195.4	30	17.80	35.616	5.53	25.811	219.5	0.066					
82	16.07	35.624	5.44	0.20	1.2	0.00	0.3	179.9	50	17.43	35.637	5.55	25.916	209.5	0.110					
103	15.34	35.544	5.25	0.36	1.5	0.00	2.9	169.9	75	16.35	35.644	5.49	26.178	184.6	0.159					
124	14.93	35.489	5.12	0.44	1.7	0.00	4.2	165.3	100	15.43	35.555	5.28	26.322	171.0	0.204					
155	14.55	35.446	5.08	0.50	1.9	0.00	5.2	160.6	125	14.92	35.487	5.12	26.384	165.1	0.247					
186A	14.21	35.402	5.07	0.56	2.3		6.1	156.9	150	14.60	35.451	5.09	26.425	161.2	0.289					
206	14.02	35.389	4.94	0.57	2.2	0.00	6.7	154.0	200	14.07	35.391	4.98	26.492	154.8	0.371					
290A	13.57	35.326	5.18	0.63	2.3		7.4	149.7	250	13.79	35.363	5.01	26.529	151.3	0.451					
393A	12.05	35.124	5.01	0.86	3.9		11.4	135.7	300	13.46	35.312	5.18	26.558	146.5	0.529					
496A	9.83	34.808	4.81	1.28	7.5		17.6	120.9	400	11.91	35.102	4.99	26.705	134.6	0.680					
652A	6.88	34.477	4.91	1.68	13.6		24.4	102.5	500	9.75	34.798	4.81	26.856	120.3	0.818					
755A	5.17	34.323	5.27	1.83	17.9		26.9	93.3	600	7.81	34.573	4.88	26.986	108.0	0.943					
909A	3.94	34.276	5.31	2.06	27.0		29.7	84.0	700	6.03	34.395	5.08	27.093	97.9	1.055					
1114A	3.19	34.341	4.73	2.21	42.1		32.1	72.2	800	4.70	34.296	5.28	27.173	90.3	1.158					
1320A	2.90	34.458	4.45	2.25	54.5		32.1	60.8	1000	3.52	34.294	5.08	27.295	78.7	1.344					
1525A	2.78	34.591	4.07U	2.20	61.1		32.1	49.8	1200	3.03	34.386	4.58	27.414	67.4	1.505					
1730A	2.79	34.695	4.52	2.04	59.1		29.9	42.0	1500	2.79	34.577	4.48	27.588	51.0	1.709					
2037A	2.79	34.797	4.85	1.74	52.0		26.3	34.3	1750	2.79	34.704	4.54	27.689	41.4	1.851					
2344A	2.76	34.851	5.20	1.60	45.8		24.1	30.0	2000	2.79	34.787	4.80	27.756	35.0	1.976					
2549A	2.73 E	34.876	5.45	1.56	42.1		23.1	27.8	2250	2.77	34.838	5.09	27.798	31.0	2.093					
2857A	2.71	34.893	5.69	1.48	39.3		21.6	26.4	2500	2.74	34.869	5.39	27.827	28.3	2.206					
3166A	2.513	34.886	5.64	1.55	45.2		22.4	25.3	2750	2.72	34.886	5.63	27.842	26.7	2.316					
3681A	1.748	34.810	5.39		75.1		26.1	25.1	3000	2.64	34.692	5.67	27.853	25.8	2.427					
4096A	1.21	34.754	5.25	1.99	98.9		29.1	25.7	3250	2.40	34.674	5.60	27.860	25.3	2.535					
4304A	1.057	34.734	5.07	2.06	105.4		30.0	26.2	3500	2.04	34.838	5.48	27.860	25.2	2.640					
4410A	1.038	34.731	4.99	2.09	109.4		30.0	26.3	3750	1.65	34.799	5.37	27.860	25.2	2.740					
									4000	1.32	34.765	5.29	27.856	25.5	2.834					
									4250	1.09	34.739	5.12	27.851	26.1	2.924					

37 STD						CATO EXPEDITION VI						38 STD					
LATITUDE	LONGITUDE	MO/DAT/YR	START TIME			LATITUDE	LONGITUDE	MO/DAT/YR	START TIME			LATITUDE	LONGITUDE	MO/DAT/YR	START TIME		
32 27.9S	28 13.0W	11/28/72	0820 GMT			32 29.9S	26 29.2W	11/28/72	2502 GMT			32 29.9S	26 29.2W	11/28/72	2502 GMT		
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	17.97	35.76	25.879	213.1	0.000	0	17.86	35.63	25.806	219.9	0.000	0	17.86	35.63	25.806	219.9	0.000
10	17.96	35.77	25.889	212.1	0.021	10	17.84	35.63	25.811	219.5	0.022	10	17.84	35.63	25.811	219.5	0.022
20	17.82	35.77	25.923	208.8	0.042	20	17.85	35.63	25.809	219.7	0.044	20	17.85	35.63	25.809	219.7	0.044
30	17.81	35.76	25.918	209.3	0.063	30	17.79	35.62	25.816	219.0	0.066	30	17.79	35.62	25.816	219.0	0.066
40	17.73	35.76	25.938	207.5	0.084	40	17.74	35.62	25.828	217.9	0.088	40	17.74	35.62	25.828	217.9	0.088
50	17.68	35.76	25.950	206.3	0.105	50	17.69	35.62	25.840	216.7	0.110	50	17.69	35.62	25.840	216.7	0.110
60	17.62	35.76	25.965	204.4	0.126	60	17.38	35.59	25.893	211.7	0.151	60	17.38	35.59	25.893	211.7	0.151
70	17.57	35.75	25.969	204.5	0.147	70	16.70	35.59	26.055	196.5	0.152	70	16.70	35.59	26.055	196.5	0.152
80	17.19	35.72	26.038	197.9	0.167	80	16.28	35.60	26.161	186.2	0.171	80	16.28	35.60	26.161	186.2	0.171
90	17.02	35.73	26.087	193.3	0.187	90	15.70	35.58	26.279	175.0	0.190	90	15.70	35.58	26.279	175.0	0.190
100	16.60	35.69	26.156	186.8	0.206	100	15.49	35.56	26.311	172.0	0.207	100	15.49	35.56	26.311	172.0	0.207
125	16.11	35.66	26.247	178.1	0.253	125	14.92	35.50	26.392	164.3	0.250	125	14.92	35.50	26.392	164.3	0.250
150	15.46	35.58	26.334	169.9	0.297	150	14.64	35.47	26.430	160.7	0.292	150	14.64	35.47	26.430	160.7	0.292
200	14.68	35.48	26.429	160.8	0.383	200	14.34	35.46	26.488	155.5	0.374	200	14.34	35.46	26.488	155.5	0.374
250A	14.35	35.49	26.509	155.3	0.464	300A	13.50	35.37	26.595	145.1	0.551	300A	13.50	35.37	26.595	145.1	0.551
300A	13.92	35.44	26.561	148.2	0.544	350A	12.79	35.24	26.639	140.9	0.607	350A	12.79	35.24	26.639	140.9	0.607
350A	13.31	35.32	26.596	145.0	0.622	400A	12.04	35.10	26.677	137.3	0.681	400A	12.04	35.10	26.677	137.3	0.681
400A	12.50	35.16	26.635	141.3	0.698	450A	10.86	34.93	26.765	128.9	0.753	450A	10.86	34.93	26.765	128.9	0.753
450A	11.48	35.03	26.729	132.3	0.772	500A	9.89	34.82	26.850	120.9	0.821	500A	9.89	34.82	26.850	120.9	0.821
500A	10.53	34.88	26.785	127.0	0.842	550A	8.92	34.65	26.877	118.3	0.886	550A	8.92	34.65	26.877	118.3	0.886
550A	9.25	34.71	26.871	118.9	0.910	600A	8.59	34.53	26.986	108.0	0.948	600A	8.59	34.53	26.986	108.0	0.948
600A	7.74	34.58	27.004	106.4	0.971	650A	6.89	34.45	27.022	104.6	1.006	650A	6.89	34.45	27.022	104.6	1.006
650A	6.67	34.43	27.036	103.3	1.029	700A	6.00	34.37	27.077	99.4	1.062	700A	6.00	34.37	27.077	99.4	1.062
700A	5.63	34.33	27.092	98.0	1.084	750A	5.14	34.30	27.127	94.7	1.115	750A	5.14	34.30	27.127	94.7	1.115
750A	5.07	34.30	27.114	93.9	1.136	800A	4.58	34.29	27.204	87.4	1.214	800A	4.58	34.29	27.204	87.4	1.214
800A	4.65	34.28	27.167	90.9	1.186	900A	4.03	34.27	27.225	85.4	1.261	900A	4.03	34.27	27.225	85.4	1.261
850A	4.45	34.28	27.189	88.8	1.235	950A	3.76	34.26	27.261	82.0	1.307	950A	3.76	34.26	27.261	82.0	1.307
900A	4.11	34.27	27.217	86.2	1.283	1000A	3.56	34.29	27.288	79.4	1.351	1000A	3.56	34.29	27.288	79.4	1.351
950A	3.94	34.28	27.242	83.7	1.330	1100A	3.24	34.33	27.351	73.5	1.436	1100A	3.24	34.33	27.351	73.5	1.436
1000A	3.73	34.30	27.280	80.2	1.375	1200A	3.02	34.38	27.411	67.8	1.514	1200A	3.02	34.38	27.411	67.8	1.514
1100A	3.52	34.31	27.328	75.7	1.461	1400A	2.84	34.51	27.531	56.4	1.655	1400A	2.84	34.51	27.531	56.4	1.655
1200A	3.08	34.35	27.382	70.5	1.542	1500A	2.77	34.59	27.601	49.8	1.717	1500A	2.77	34.59	27.601	49.8	1.717
1300A	2.92	34.42	27.452	65.9	1.617	1600A	2.77	34.63	27.633	46.7	1.775	1600A	2.77	34.63	27.633	46.7	1.775
1400A	2.87	34.48	27.504	58.9	1.688	1700A	2.76	34.69	27.681	42.1	1.830	1700A	2.76	34.69	27.681	42.1	1.830
1500A	2.83	34.54	27.556	54.0	1.753	2200A	2.72	34.83	27.797	31.2	2.075	2200A	2.72	34.83	27.797	31.2	2.075
1600A	2.81	34.60	27.605	49.4	1.815	2300A	2.73	34.85	27.812	29.8	2.120	2300A	2.73	34.85	27.812	29.8	2.120
1700A	2.80	34.65	27.646	45.5	1.873	2400A	2.74	34.86	27.819	29.1	2.165	2400A	2.74	34.86	27.819	29.1	2.165
1800A	2.81	34.70	27.685	41.6	1.926	2500A	2.73	34.87	27.828	28.3	2.209	2500A	2.73	34.87	27.828	28.3	2.209
1900A	2.82	34.74	27.716	38.9	1.980	3000A	2.64	34.89	27.852	26.0	2.430	3000A	2.64	34.89	27.852	26.0	2.430
2000A	2.81	34.76	27.733	37.3	2.031	3100A	2.58	34.89	27.857	25.5	2.474	3100A	2.58	34.89	27.857	25.5	2.474
2100A	2.79	34.80	27.766	34.1	2.080	3200A	2.49	34.89	27.865	24.8	2.518	3200A	2.49	34.89	27.865	24.8	2.518
2200A	2.80	34.82	27.782	32.7	2.127	3300A	2.37	34.87	27.859	25.3	2.561	3300A	2.37	34.87	27.859	25.3	2.561
2300A	2.81	34.84	27.797	31.2	2.174	3400A	2.18	34.86	27.867	24.6	2.603	3400A	2.18	34.86	27.867	24.6	2.603
2400A	2.80	34.85	27.805	30.4	2.220	3500A	2.03	34.83	27.855	25.7	2.645	3500A	2.03	34.83	27.855	25.7	2.645
2500A	2.79	34.87	27.822	28.8	2.265	3600A	1.87	34.83	27.867	24.5	2.685	3600A	1.87	34.83	27.867	24.5	2.685
2600A	2.77	34.88	27.832	27.9	2.310	3700A	1.73	34.81	27.862	25.0	2.725	3700A	1.73	34.81	27.862	25.0	2.725
2700A	2.72	34.88	27.836	27.4	2.355	3800A	1.61	34.79	27.855	25.7	2.764	3800A	1.61	34.79	27.855	25.7	2.764
2800A	2.66	34.88	27.842	26.9	2.399	3900A	1.46	34.78	27.858	25.4	2.802	3900A	1.46	34.78	27.858	25.4	2.802
2900A	2.60	34.88	27.847	26.4	2.443	4000A	1.32	34.76	27.852	26.0	2.839	4000A	1.32	34.76	27.852	26.0	2.839
3000A	2.53	34.87	27.845	26.6	2.487	4100A	1.20	34.76	27.861	25.2	2.876	4100A	1.20	34.76	27.861	25.2	2.876
3100A	2.41	34.86	27.848	26.4	2.531	4200A	1.12	34.74	27.850	26.2	2.911	4200A	1.12	34.74	27.850	26.2	2.911
3200A	2.32	34.87	27.863	24.9	2.573	4300A	1.05	34.73	27.847	26.5	2.947	4300A	1.05	34.73	27.847	26.5	2.947
3300A	2.17	34.84	27.852	26.0	2.616	4400A	1.03	34.73	27.848	26.4	2.982	4400A	1.03	34.73	27.848	26.4	2.982
3400A	1.97	34.82	27.852	26.0	2.657	4446A	1.02	34.72	27.841	27.1	2.999	4446A	1.02	34.72	27.841	27.1	2.999
3500A	1.79	34.81	27.858	25.5	2.697												
3600A	1.64	34.80	27.861	25.1	2.736												
3700A	1.46	34.78	27.858	25.4	2.774												
3800A	1.33	34.77	27.859	25.3	2.810												
3900A	1.23	34.76	27.858	25.4	2.846												
4000A	1.18	34.76	27.862	25.0	2.881												
4089A	1.13	34.75	27.857	25.5	2.912												

RV MELVILLE								CATO EXPEDITION VI								39	
LATITUDE 32 30.0S		LONGITUDE 25 14.9W		MO/DAY/YR 11/29/72		MESSENGER 1125 1409		TIME GMT	BOTTOM 4290M	WIND 270	SPEED 14KT	WEATHER 1	DOMINANT WAVES 280 5 6				
Z	T	S	Q2	P04	SIG3	N02	N03	DT	Z	T	S	Q2	SIG1	DT	DD		
0	18.07	35.767	5.48	0.11	1.2	0.00	0.0	214.4	0	18.07	35.767	5.48	25.859	214.9	0.000		
32	17.94	35.767	5.49	0.10	1.3	0.00	0.0	211.4	10	18.02	35.767	5.48	25.871	213.7	0.021		
63	17.87	35.759	5.52	0.10	1.2	0.00	0.0	210.4	20	17.98	35.767	5.49	25.882	212.8	0.043		
95	17.59	35.705	5.55	0.10	1.2	0.00	0.0	203.6	30	17.95	35.766	5.49	25.890	212.0	0.064		
126	16.08	35.610	5.65	0.15	1.4	0.00	0.0	181.1	50	17.90	35.758	5.51	25.895	211.5	0.107		
150A	15.69	35.587	5.53	0.20	1.4		0.9	174.3	75	17.77	35.744	5.53	25.917	209.4	0.160		
157	15.42	35.569	5.53	0.12	1.4	0.25	1.1	169.4	100	17.18	35.687	5.57	26.017	200.0	0.212		
254A	14.20	35.399	5.07	0.52	2.5		6.0	156.9	125	16.12	35.612	5.65	26.208	181.8	0.260		
357A	12.89	35.242	5.04	0.64	3.3		9.1	142.7	150	15.69	35.587	5.53	26.287	174.3	0.306		
461A	11.25	35.003	4.88	1.02	5.4		13.8	130.3	200	14.59	35.409	5.35	26.395	164.1	0.393		
564A	8.91	34.695	4.80	1.31	9.1		19.6	114.9	250	14.20	35.392	5.09	26.465	157.4	0.477		
667A	6.94	34.486	4.90	1.62	15.0		23.8	102.4	300	13.64	35.332	5.06	26.538	150.5	0.558		
874A	4.75	34.329	5.05	1.94	23.6		28.9	88.3	400	12.28	35.153	4.98	26.674	137.6	0.711		
1078A	3.38	34.308	5.09	2.09	37.0		31.1	76.4	500	10.38	34.881	4.83	26.813	124.5	0.853		
1284A	2.91	34.427	4.56	2.21	52.4		31.2	63.3	600	8.17	34.611	4.83	26.963	110.2	0.981		
1489A	2.00	34.561	4.39	2.17	60.4		31.4	52.2	700	6.48	34.446	4.93	27.073	99.8	1.097		
1795A	2.78	34.728	4.70	1.90	58.2		28.7	39.4	800	5.35	34.362	5.01	27.150	92.5	1.203		
2103A	2.80	34.815	5.09	1.67	51.4		25.6	33.0	1000	3.80	34.301	5.07	27.272	80.9	1.394		
2308A	2.78	34.850	5.32	1.62	46.5		24.6	30.2	1200	3.02	34.370	4.79	27.402	68.6	1.560		
2615A	2.76	34.884	5.57	1.45	41.4		22.6	27.5	1500	2.80	34.570	4.39	27.581	51.7	1.766		
2924A	2.69	34.897	5.69	1.44	40.4		21.4	25.9	1750	2.78	34.708	4.63	27.694	41.0	1.908		
3231A	2.483	34.888	5.70	1.42	46.6		22.0	24.9	2000	2.79	34.793	4.96	27.760	34.7	2.033		
3542A	2.08	34.852	5.60	1.58	61.1		23.9	24.4	2250	2.79	34.841	5.26	27.800	30.9	2.149		
3854A	1.573	34.798	5.44	1.74	81.8		26.2	24.8	2500	2.77	34.871	5.49	27.825	28.3	2.262		
4166A	1.189	34.756	5.20	1.93	100.2		29.0	25.4	2750	2.74	34.890	5.64	27.843	26.7	2.373		
4272A	0.858	34.721	5.12	2.06	117.7		30.4	26.0	3000	2.65	34.896	5.69	27.855	25.6	2.483		
									3250	2.46	34.885	5.70	27.864	24.8	2.592		
									3500	2.14	34.857	5.62	27.868	24.4	2.698		
									3750	1.74	34.815	5.50	27.866	24.6	2.798		
									4000	1.44	34.782	5.33	27.861	25.0	2.893		
									4250	0.94	34.729	5.14	27.853	25.9	2.982		

RV MELVILLE							CATO EXPEDITION VI									
LATITUDE 33 40.9S		LONGITUDE 25 15.3W		MO/DAY/YR 11/30/72		MESSENGER 0019 0320		TIME GMT	BOTTOM 4623M	WIND 320	SPEED 24KT	WEATHER 1	DOMINANT WAVES 340 4 4			
Z	T	S	Q2	P04	SIG3	N02	N03	DT	Z	T	S	Q2	SIG1	DT	DD	
0	17.49	35.661	5.57	0.13	1.4		0.1	209.1	0	17.49	35.661	5.57	25.920	209.1	0.000	
21	17.49	35.658	5.48	0.14	1.3		0.0	209.3	10	17.49	35.659	5.51	25.919	209.2	0.021	
42	17.39	35.640	5.50	0.14	1.5		0.0	208.3	20	17.49	35.657	5.48	25.918	209.3	0.042	
63	17.20	35.623	5.46	0.16	1.2		0.0	205.2	30	17.46	35.650	5.49	25.921	209.1	0.063	
83	16.66	35.630	5.60	0.16	1.5		0.0	192.5	50	17.35	35.641	5.48	25.941	207.1	0.105	
104	15.84	35.610	5.54	0.24	1.4		0.2	175.9	75	16.91	35.626	5.55	26.034	198.3	0.156	
136	15.16	35.512	5.26	0.40	1.7		3.2	168.5	100	15.99	35.615	5.55	26.240	178.8	0.204	
177	14.54	35.45	5.22	0.52	2.1		4.7	160.1	125	15.35	35.547	5.36	26.335	169.7	0.248	
209	14.44	35.459	5.30	0.49	2.1		4.8	157.4	150	14.90	35.481	5.25	26.382	165.2	0.291	
312	13.71	35.406	5.28	0.58	2.3		6.7	146.6	200	14.45	35.454	5.27	26.459	158.0	0.375	
399A	12.42	35.189	4.92	0.82	3.8		10.8	137.7	250	14.24	35.459	5.29	26.509	153.2	0.456	
415	12.32	35.166	5.15	0.91	3.9		11.3	137.6	300	13.83	35.421	5.28	26.565	147.9	0.535	
502A	10.26	34.867	4.83	1.20	6.6		16.4	123.5	400	12.41	35.187	4.93	26.673	137.7	0.687	
605A	7.79	34.553	5.00	1.42	10.1		21.6	109.1	500	10.32	34.874	4.84	26.818	123.9	0.829	
708A	6.19	34.392	4.99	1.75	13.1		24.6	100.1	600	7.90	34.567	4.99	26.968	109.7	0.956	
811A	4.94	34.289	5.36	1.80	16.7		26.8	93.4	700	6.29	34.402	4.99	27.064	100.6	1.072	
914A	4.20	34.258	5.44	1.95	21.8		28.4	88.0	800	5.05	34.298	5.32	27.135	94.0	1.179	
1119A	3.34	34.300	5.08	2.18	35.9		31.7	76.6	1000	3.76	34.265	5.34	27.248	83.2	1.373	
1324A	2.96	34.402	4.51	2.27	49.3		32.4	65.6	1200	3.15	34.336	4.85	27.364	72.3	1.545	
1529A	2.77	34.540	4.27	2.24	60.0		32.5	53.5	1500	2.79	34.520	4.28	27.543	55.2	1.763	
1733A	2.78	34.666	4.43	2.10	60.9		30.6	44.1	1750	2.78	34.675	4.44	27.667	43.5	1.911	
2040A	2.84	34.785	4.68	1.85	53.8		27.3	35.6	2000	2.83	34.773	4.64	27.741	36.5	2.042	
2346A	2.85	34.867	5.22	1.66	46.6		24.4	29.5	2250	2.85	34.847	5.06	27.799	31.0	2.161	
2550A	2.79	34.872	5.37	1.60	43.7		23.6	28.6	2500	2.81	34.872	5.34	27.823	28.8	2.275	
2857A	2.66	34.889	5.55	1.50	42.4		23.0	26.3	2750	2.72	34.884	5.50	27.840	27.1	2.387	
3164A	2.378	34.872	5.55	1.56	50.9		23.3	25.2	3000	2.54	34.882	5.55	27.854	25.7	2.497	
3472A	1.991	34.841	5.49	1.69	64.4		24.6	24.6	3250	2.28	34.863	5.54	27.862	25.0	2.603	
3884A	1.472	34.766	5.19	1.88	87.0		27.3	25.0	3500	1.96	34.837	5.47	27.866	24.6	2.706	
4195A	1.083	34.743	5.12	2.05	103.3		29.7	25.7	3750	1.64	34.803	5.29	27.864	24.9	2.803	
4507A	0.818	34.714	5.03	2.15	115.4		31.5	26.3	4000	1.32	34.769	5.16	27.859	25.3	2.897	
4611A	0.824	34.714	5.00	2.15	116.3		31.1	26.3	4250	1.02	34.737	5.10	27.854	25.8	2.985	
									4500	0.82	34.715	5.03	27.849	26.3	3.070	



39 STD						CATO EXPEDITION VI						40 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
32 30.0S	25 14.9W	11/29/72	0949 GMT			33 40.9S	25 15.3W	11/29/72	2234 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
3	18.15	35.82	25.880	213.0	0.000	0	17.50	35.68	25.933	207.9	0.000	0	17.50	35.68	25.933	207.9	0.000
10	18.09	35.82	25.895	211.5	0.021	10	17.52	35.67	25.920	209.1	0.021	10	17.52	35.67	25.920	209.1	0.021
20	18.08	35.82	25.897	211.3	0.042	20	17.50	35.67	25.925	208.7	0.042	20	17.50	35.67	25.925	208.7	0.042
30	18.09	35.83	25.902	210.8	0.064	30	17.44	35.65	25.924	208.7	0.063	30	17.44	35.65	25.924	208.7	0.063
40	18.08	35.82	25.897	211.3	0.085	40	17.38	35.63	25.923	208.8	0.084	40	17.38	35.63	25.923	208.8	0.084
50	18.06	35.82	25.902	210.6	0.106	50	17.29	35.62	25.938	207.5	0.105	50	17.29	35.62	25.938	207.5	0.105
60	18.00	35.81	25.909	210.2	0.127	60	17.19	35.60	25.946	206.6	0.126	60	17.19	35.60	25.946	206.6	0.126
70	18.00	35.80	25.902	210.9	0.149	70	16.97	35.61	26.007	200.9	0.146	70	16.97	35.61	26.007	200.9	0.146
80	17.97	35.82	25.924	208.7	0.170	80	16.82	35.62	26.050	196.8	0.166	80	16.82	35.62	26.050	196.8	0.166
90	17.80	35.79	25.943	206.9	0.191	90	16.04	35.58	26.202	182.4	0.186	90	16.04	35.58	26.202	182.4	0.186
100	17.48	35.75	25.991	202.4	0.212	100	15.78	35.59	26.269	176.0	0.204	100	15.78	35.59	26.269	176.0	0.204
125	16.43	35.66	26.172	185.2	0.261	125	15.30	35.51	26.316	171.6	0.248	125	15.30	35.51	26.316	171.6	0.248
150	15.64	35.65	26.338	169.5	0.307	150	14.41	35.46	26.386	164.9	0.291	150	14.41	35.46	26.386	164.9	0.291
200	14.87	35.52	26.419	161.8	0.392	200	14.48	35.45	26.450	158.9	0.375	200	14.48	35.45	26.450	158.9	0.375
250	14.35	35.46	26.485	155.5	0.475	250	14.13	35.46	26.532	151.0	0.456	250	14.13	35.46	26.532	151.0	0.456
300	13.78	35.39	26.552	149.1	0.555	300	13.82	35.44	26.582	146.3	0.534	300	13.82	35.44	26.582	146.3	0.534
350	13.11	35.30	26.621	142.6	0.632	350	13.44	35.39	26.623	142.4	0.611	350	13.44	35.39	26.623	142.4	0.611
400	12.40	35.19	26.677	137.3	0.707	400	12.41	35.19	26.656	139.3	0.686	400	12.41	35.19	26.656	139.3	0.686
450	11.37	35.02	26.742	131.1	0.780	450A	11.41	34.96	26.688	136.3	0.760	450A	11.41	34.96	26.688	136.3	0.760
500	10.21	34.87	26.834	122.5	0.849	500A	10.54	34.89	26.791	126.5	0.832	500A	10.54	34.89	26.791	126.5	0.832
550	9.22	34.76	26.915	114.8	0.913	550A	9.14	34.69	26.873	118.7	0.898	550A	9.14	34.69	26.873	118.7	0.898
600	8.36	34.63	26.949	111.5	0.975	600A	7.90	34.51	26.925	113.8	0.962	600A	7.90	34.51	26.925	113.8	0.962
650	7.60	34.56	27.008	105.9	1.035	650A	6.95	34.47	27.030	103.9	1.021	650A	6.95	34.47	27.030	103.9	1.021
700	6.45	34.44	27.074	99.7	1.092	700A	6.27	34.41	27.074	99.7	1.077	700A	6.27	34.41	27.074	99.7	1.077
750	5.89	34.41	27.122	95.1	1.146	750A	5.55	34.34	27.109	96.4	1.131	750A	5.55	34.34	27.109	96.4	1.131
800	5.37	34.38	27.163	91.3	1.197	800A	5.00	34.29	27.135	93.9	1.183	800A	5.00	34.29	27.135	93.9	1.183
850	4.82	34.34	27.195	88.2	1.247	850A	4.54	34.26	27.163	91.3	1.234	850A	4.54	34.26	27.163	91.3	1.234
900A	4.43	34.31	27.215	86.4	1.295	900A	4.26	34.26	27.193	88.4	1.283	900A	4.26	34.26	27.193	88.4	1.283
950A	4.04	34.30	27.248	83.2	1.342	950A	3.96	34.26	27.225	85.4	1.331	950A	3.96	34.26	27.225	85.4	1.331
1000A	3.65	34.29	27.280	80.2	1.387	1000A	3.79	34.27	27.250	83.1	1.377	1000A	3.79	34.27	27.250	83.1	1.377
1100A	3.17	34.32	27.350	73.6	1.471	1100A	3.41	34.29	27.305	78.0	1.466	1100A	3.41	34.29	27.305	78.0	1.466
1200A	2.97	34.38	27.416	67.3	1.549	1200A	3.13	34.33	27.361	72.5	1.549	1200A	3.13	34.33	27.361	72.5	1.549
1300A	2.89	34.45	27.479	61.4	1.622	1300A	3.02	34.40	27.427	66.2	1.627	1300A	3.02	34.40	27.427	66.2	1.627
1400A	2.84	34.52	27.539	55.6	1.689	1400A	2.89	34.46	27.487	60.6	1.639	1400A	2.89	34.46	27.487	60.6	1.639
1500A	2.83	34.57	27.580	51.0	1.752	1500A	2.82	34.53	27.549	54.7	1.766	1500A	2.82	34.53	27.549	54.7	1.766
1600A	2.80	34.62	27.622	47.0	1.812	1600A	2.77	34.58	27.593	50.5	1.828	1600A	2.77	34.58	27.593	50.5	1.828
1700A	2.79	34.69	27.679	42.4	1.867	1700A	2.79	34.64	27.639	46.2	1.887	1700A	2.79	34.64	27.639	46.2	1.887
1800A	2.80	34.73	27.710	39.4	1.919	1800A	2.80	34.69	27.678	42.5	1.942	1800A	2.80	34.69	27.678	42.5	1.942
1900A	2.80	34.76	27.734	37.2	1.970	1900A	2.82	34.74	27.716	38.9	1.995	1900A	2.82	34.74	27.716	38.9	1.995
2000A	2.80	34.79	27.758	34.9	2.010	2000A	2.83	34.78	27.747	35.9	2.045	2000A	2.83	34.78	27.747	35.9	2.045
2100A	2.80	34.82	27.782	32.7	2.066	2100A	2.84	34.80	27.762	34.5	2.094	2100A	2.84	34.80	27.762	34.5	2.094
2200A	2.80	34.84	27.797	31.1	2.112	2200A	2.84	34.83	27.786	32.2	2.142	2200A	2.84	34.83	27.786	32.2	2.142
2300A	2.80	34.86	27.813	29.6	2.157	2300A	2.83	34.84	27.795	31.4	2.188	2300A	2.83	34.84	27.795	31.4	2.188
2400A	2.79	34.88	27.830	28.0	2.201	2400A	2.82	34.86	27.812	29.6	2.234	2400A	2.82	34.86	27.812	29.6	2.234
2500A	2.78	34.88	27.831	26.4	2.245	2500A	2.77	34.87	27.824	28.6	2.279	2500A	2.77	34.87	27.824	28.6	2.279
2600A	2.77	34.90	27.848	25.6	2.289	2600A	2.75	34.88	27.834	27.7	2.324	2600A	2.75	34.88	27.834	27.7	2.324
2700A	2.77	34.91	27.856	24.7	2.332	2700A	2.69	34.88	27.839	27.2	2.368	2700A	2.69	34.88	27.839	27.2	2.368
2800A	2.75	34.92	27.866	24.7	2.375	2800A	2.66	34.89	27.850	26.2	2.412	2800A	2.66	34.89	27.850	26.2	2.412
2900A	2.72	34.92	27.869	24.4	2.417	2900A	2.63	34.88	27.845	26.7	2.456	2900A	2.63	34.88	27.845	26.7	2.456
3000A	2.64	34.91	27.867	24.5	2.460	3000A	2.54	34.89	27.860	25.2	2.499	3000A	2.54	34.89	27.860	25.2	2.499
3100A	2.59	34.91	27.872	24.1	2.503	3100A	2.45	34.88	27.860	25.2	2.542	3100A	2.45	34.88	27.860	25.2	2.542
3200A	2.49	34.90	27.873	24.0	2.545	3200A	2.34	34.87	27.861	23.1	2.585	3200A	2.34	34.87	27.861	23.1	2.585
3300A	2.38	34.90	27.882	23.1	2.587	3300A	2.23	34.87	27.871	24.2	2.626	3300A	2.23	34.87	27.871	24.2	2.626
3400A	2.28	34.88	27.874	23.9	2.628	3400A	2.11	34.84	27.856	25.6	2.668	3400A	2.11	34.84	27.856	25.6	2.668
3500A	2.07	34.86	27.876	23.7	2.669	3500A	1.97	34.84	27.868	24.5	2.708	3500A	1.97	34.84	27.868	24.5	2.708
3600A	1.92	34.85	27.880	23.4	2.709	3600A	1.83	34.82	27.863	25.0	2.748	3600A	1.83	34.82	27.863	25.0	2.748
3700A	1.74	34.83	27.878	23.6	2.747	3700A	1.70	34.81	27.865	24.8	2.787	3700A	1.70	34.81	27.865	24.8	2.787
3800A	1.61	34.81	27.871	24.2	2.785	3800A	1.56	34.80	27.867	24.6	2.825	3800A	1.56	34.80	27.867	24.6	2.825
3900A	1.48	34.80	27.873	24.0	2.822	3900A	1.46	34.80	27.874	23.9	2.862	3900A	1.46	34.80	27.874	23.9	2.862
4000A	1.36	34.79	27.875	24.0	2.858	4000A	1.36	34.77	27.857	25.5	2.899	4000A	1.36	34.77	27.857	25.5	2.899
4100A	1.24	34.76	27.858	25.4	2.894	4100A	1.24	34.76	27.858	25.4	2.935	4100A	1.24	34.76	27.858	25.4	2.935
4200A	0.91	34.73	27.856	25.6	2.928	4200A	1.08	34.75	27.861	25.2	2.970	4200A	1.08	34.75	27.861	25.2	2.970
4272A	0.84	34.73	27.860	25.2	2.952	4300A	0.91	34.73	27.856	25.6	3.004	4300A	0.91	34.73	27.856	25.6	3.004
						4400A	0.83	34.72	27.853	25.9	3.037	4400A	0.83	34.72	27.853	25.9	3.037
						4500A	0.81	34.71	27.846	26.5	3.070	4500A	0.81	34.71	27.846	26.5	3.070
						4600A	0.82	34.71	27.846	26.6	3.104	4					

RV MELVILLE								CATO EXPEDITION VI							
LATITUDE		LONGITUDE		MO/DAT/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
36 35.2S		32 15.5W		12/ 3/72		0019 0315		GMT	4558M	220	2FKT	2	210 17		
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S10T	DT	DD
0	15.45	35.724	5.78	0.20	1.0	1.2	159.1	0	15.45	35.724	5.78	26.446	159.1	0.000	
101	15.46	35.721	5.70	0.21	1.2	1.3	159.6	10	15.45	35.723	5.77	26.446	159.2	0.016	
153	15.16	35.688	5.43	0.28	1.3	2.9	155.6	20	15.45	35.722	5.76	26.446	159.2	0.032	
202	14.81	35.642	5.45	0.38	1.7	4.4	151.6	30	15.45	35.722	5.76	26.445	159.3	0.048	
279	14.55	35.587	5.39	0.44	2.0	5.4	150.3	50	15.45	35.721	5.74	26.444	159.4	0.080	
356	13.89	35.461	5.31	0.55	2.2	6.9	146.1	75	15.46	35.721	5.72	26.443	159.5	0.120	
420A	12.64	35.220	5.01	0.71	3.6	10.4	139.6	100	15.46	35.720	5.70	26.442	159.6	0.161	
458	11.58	35.047	4.94	0.97	4.6	12.9	132.9	125	15.34	35.707	5.57	26.459	157.9	0.201	
523A	9.54	34.740	5.00	1.06	6.5	17.4	121.3	150	15.18	35.669	5.44	26.481	155.9	0.242	
627A	6.32	34.358	5.59	1.31	10.6	22.5	104.2	200	14.82	35.643	5.45	26.524	151.8	0.321	
730A	5.04	34.257	5.90	1.71	12.8	24.5	96.8	250	14.65	35.610	5.42	26.537	150.6	0.400	
833A	4.42	34.218	5.96	1.72U	15.6	26.3	93.2	300	14.44	35.565	5.37	26.548	149.5	0.479	
936A	3.92	34.224	5.79	1.71U	21.4	27.9	87.8	400	13.10	35.305	5.10	26.627	142.1	0.635	
1090A	3.32	34.245	5.56	1.92U	30.5	29.8	80.6	500	10.28	34.645	4.98	26.803	125.3	0.780	
1244A	2.90	34.314	5.11	1.98U	41.9	31.6	71.7	600	7.06	34.434	5.42	26.985	108.1	0.907	
1449A	2.72	34.440	4.52	1.73U	56.7	32.0	60.7	700	5.28	34.274	5.84	27.089	98.3	1.019	
1654A	2.69	34.566	4.26	2.07U	64.1	32.0	50.9	800	4.58	34.226	5.94	27.131	94.3	1.123	
1961A	2.82	34.723	4.53	1.92U	63.0	29.6	40.1	1000	3.65	34.230	5.71	27.232	84.8	1.318	
2268A	2.93	34.826	5.03	1.92U	50.5	25.8	33.3	1200	3.00	34.291	5.25	27.342	74.3	1.493	
2472A	2.93	34.869	5.32	1.37U	45.8	23.7	30.1	1500	2.71	34.474	4.42	27.513	58.1	1.717	
2676A	2.76	34.870	5.36	1.36U	47.6	23.4	28.5	1750	2.72	34.621	4.29	27.629	47.1	1.873	
2984A	2.44	34.854	5.33	1.64U	56.9	23.4	27.1	2000	2.84	34.740	4.59	27.713	39.1	2.010	
3292A	1.774	34.780	4.96	1.83	86.3	27.8	27.6	2250	2.93	34.821	5.00	27.771	33.6	2.137	
3704A	1.127	34.730	4.93	1.99	110.1	30.9	27.0	2500	2.91	34.870	5.33	27.812	29.8	2.256	
4119A	0.526	34.694	5.04	1.75U	123.7	31.7	26.1	2750	2.70	34.868	5.35	27.829	28.1	2.371	
4432A	0.302	34.681	5.13	2.25	128.2	31.9	25.9	3000	2.41	34.850	5.31	27.840	27.1	2.462	
4537A	0.29	34.679	5.14	2.26	123.1	32.2	26.0	3250	1.87	34.790	5.01	27.836	27.5	2.588	
								3500	1.43	34.752	4.94	27.838	27.4	2.687	
								3750	1.05	34.725	4.94	27.843	26.9	2.778	
								4000	0.68	34.703	5.00	27.848	26.3	2.861	
								4250	0.40	34.687	5.08	27.852	26.0	2.935	
								4500	0.23	34.680	5.14	27.853	25.9	3.004	

RV MELVILLE							CATO EXPEDITION VI								
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 30.0S		34 19.7W		12/ 3/72		1825 2055		GMT	4690M	180	14KT	1	180 6 7		
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S10T	DT	DD
0	15.40	35.667	5.87	0.22	1.2	1.3	162.2	0	15.40	35.667	5.87	26.414	162.2	0.000	
10	15.38	35.666	5.88	0.21	1.2	1.3	161.9	10	15.38	35.666	5.88	26.418	161.9	0.016	
31	15.33	35.665	5.88	0.20	1.2	1.3	160.9	20	15.36	35.664	5.88	26.423	161.4	0.032	
62	15.28	35.664	5.83	0.22	1.2	1.4	159.9	30	15.33	35.664	5.88	26.428	160.9	0.049	
93	15.25	35.666	5.81	0.24	1.2	1.6	159.1	50	15.30	35.663	5.85	26.435	160.2	0.081	
125	15.06	35.669	5.72	0.30	1.4	2.2	154.9	75	15.27	35.661	5.82	26.440	159.8	0.121	
156	14.90	35.642	5.60	0.35	1.5	3.2	153.5	100	15.21	35.667	5.79	26.456	158.2	0.162	
207	14.42	35.578	5.54	0.43	1.7	4.6	148.3	125	15.06	35.669	5.72	26.491	154.9	0.202	
260	14.21	35.533	5.57	0.44	1.7	4.8	147.3	150	14.93	35.648	5.62	26.504	153.7	0.241	
312		35.470	5.45	0.51	2.0	5.8		200	14.49	35.586	5.55	26.554	149.0	0.320	
351A	13.51	35.383	5.32	0.61	2.4	7.4	144.3	250	14.24	35.539	5.57	26.570	147.5	0.397	
454A	10.77	34.922	4.88	1.10	5.4	14.5	128.0	300	14.03	35.500	5.49	26.585	146.0	0.475	
557A	7.70	34.512	5.26	1.39	8.5	20.5	110.9	400	12.36	35.176	5.07	26.675	137.4	0.626	
660A	5.46	34.286	5.86	1.76U	13.2	24.9	99.4	500	9.37	34.720	4.99	26.859	120.0	0.765	
763A	4.54	34.226	6.01	1.67	14.7	25.3	93.8	600	6.63	34.396	5.52	27.014	105.4	0.887	
865A	4.08	34.225	5.90	1.83	18.8	26.4	89.3	700	5.00	34.252	5.92	27.105	96.8	0.996	
1070A	3.30	34.252	5.55	2.05	30.5	30.2	79.9	800	4.34	34.223	5.99	27.154	92.1	1.099	
1173A	2.96	34.296	5.27	2.12	37.0	30.7	73.6	1000	3.55	34.237	5.69	27.247	83.3	1.289	
1378A	2.71	34.410	4.69	2.24	53.0	32.7	62.9	1200	2.90	34.311	5.19	27.366	72.1	1.460	
1583A	2.69	34.531	4.39	2.24	62.2	32.7	53.6	1500	2.70	34.485	4.48	27.523	57.2	1.678	
1890A	2.81	34.693	4.46	2.05	62.2	29.4	42.3	1750	2.75	34.626	4.43	27.630	47.0	1.833	
2197A	2.87	34.789	4.89	1.85	57.6	26.3	35.6	2000	2.84	34.734	4.60	27.709	39.5	1.971	
2402A	2.82	34.826	5.09	1.76	53.6	25.8	32.4	2250	2.87	34.801	4.95	27.760	34.7	2.099	
2607A	2.66		5.16	1.71	56.7	25.0		2500	2.75	34.829	5.13	27.793	31.3	2.220	
2915A	2.384	34.833	5.20	1.73	62.7	25.3	28.2	2750	2.54	34.832	5.18	27.814	29.1	2.336	
3325A	1.790		5.09	1.90	84.0	27.6		3000	2.27	34.823	5.18	27.830	28.1	2.447	
3737A	1.169	34.736	5.04	2.05	102.4	28.9	26.8	3250	1.91	34.792	5.11	27.834	27.7	2.552	
4149A	0.475							3500	1.53	34.762	5.06	27.839	27.2	2.651	
4563A	0.197	34.673	5.20	2.23	129.4	32.4	25.9	3750	1.14	34.734	5.04	27.844	26.8	2.744	
4668A	0.15	34.669	5.21	2.23	129.6	31.8	26.0	4000	0.71	34.703	5.09	27.846	26.4	2.829	
								4250	0.38	34.682	5.14	27.849	26.1	2.905	
								4500	0.22	34.674	5.19	27.852	25.9	2.975	

41 STD						CATO EXPEDITION VI						42 STD					
LATITUDE		LONGITUDE		MO/DAY/YR		START TIME		LATITUDE		LONGITUDE		MO/DAY/YR		START TIME			
36 35.2S		52 15.5W		12/02/72		2253 GMT		34 30.0S		34 19.7W		12/03/72		1653 GMT			
Z	T	S	SIGMA T	DT	DD			Z	T	S	SIGMA T	DT	DD				
0	15.42	35.70	26.435	160.3	0.000			0	15.42	35.68	26.419	161.7	0.000				
10	15.42	35.70	26.435	160.3	0.016			10	15.39	35.67	26.418	161.8	0.016				
20	15.40	35.70	26.439	159.8	0.032			20	15.38	35.67	26.421	161.6	0.032				
30	15.42	35.71	26.442	159.5	0.048			30	15.37	35.68	26.431	160.6	0.049				
40	15.43	35.71	26.440	159.7	0.064			40	15.38	35.65	26.405	163.1	0.065				
50	15.45	35.72	26.443	159.4	0.080			50	15.27	35.65	26.430	160.7	0.081				
60	15.44	35.72	26.446	159.2	0.096			60	15.26	35.65	26.432	160.5	0.097				
70	15.44	35.72	26.446	159.2	0.113			70	15.25	35.66	26.442	159.6	0.114				
80	15.44	35.71	26.438	160.0	0.129			80	15.25	35.67	26.450	158.8	0.130				
90	15.46	35.71	26.434	160.4	0.145			90	15.25	35.67	26.450	158.8	0.146				
100	15.45	35.71	26.436	160.2	0.161			100	15.20	35.66	26.453	158.5	0.162				
125	15.41	35.71	26.445	159.3	0.202			125	15.04	35.67	26.497	154.4	0.202				
150	15.20	35.70	26.484	155.6	0.243			150	14.97	35.64	26.489	155.1	0.242				
200	14.81	35.64	26.524	151.8	0.322			200	14.45	35.58	26.556	148.7	0.320				
250	14.60	35.61	26.547	149.6	0.401			250	14.26	35.56	26.582	146.3	0.398				
300	14.37	35.58	26.573	147.1	0.479			300	14.04	35.51	26.590	145.5	0.474				
350	13.90	35.47	26.589	145.7	0.557			350A	13.68	35.42	26.596	144.9	0.552				
400	13.11	35.31	26.629	141.9	0.634			400A	12.51	35.19	26.656	139.3	0.628				
450	11.83	35.11	26.725	132.7	0.708			450A	11.23	34.96	26.721	133.1	0.701				
500A	10.35	34.81	26.763	129.2	0.779			500A	9.83	34.78	26.829	122.9	0.771				
550A	9.02	34.68	26.885	117.6	0.847			550A	8.15	34.57	26.935	112.9	0.855				
600A	7.19	34.42	26.957	110.8	0.909			600A	6.32	34.34	27.012	105.6	0.894				
650A	6.17	34.32	27.016	105.2	0.967			650A	5.59	34.27	27.049	102.1	0.950				
700A	5.27	34.26	27.080	99.2	1.023			700A	4.97	34.24	27.099	97.4	1.004				
750A	4.92	34.23	27.097	97.6	1.076			750A	4.62	34.21	27.115	95.9	1.056				
800A	4.58	34.21	27.119	95.5	1.128			800A	4.40	34.21	27.139	93.6	1.107				
850A	4.33	34.21	27.146	92.9	1.179			850A	4.16	34.21	27.164	91.2	1.157				
900A	4.12	34.22	27.176	90.0	1.229			900A	3.92	34.21	27.189	88.8	1.206				
950A	3.91	34.22	27.198	88.6	1.278			950A	3.67	34.22	27.222	85.7	1.253				
1000A	3.68	34.22	27.221	85.8	1.325			1000A	3.49	34.23	27.248	83.3	1.299				
1100A	3.27	34.25	27.285	79.8	1.416			1100A	3.14	34.26	27.305	77.9	1.368				
1200A	3.00	34.29	27.341	74.4	1.501			1200A	2.90	34.31	27.366	72.0	1.470				
1300A	2.81	34.36	27.414	67.5	1.579			1300A	2.75	34.36	27.419	67.0	1.547				
1400A	2.80	34.42	27.463	62.9	1.653			1400A	2.68	34.41	27.465	62.6	1.620				
1500A	2.73	34.47	27.509	58.5	1.722			1500A	2.64	34.47	27.517	57.8	1.668				
1600A	2.72	34.54	27.565	53.1	1.787			1600A	2.67	34.53	27.562	53.5	1.753				
1700A	2.72	34.60	27.613	48.6	1.848			1700A	2.71	34.59	27.606	49.3	1.814				
1800A	2.75	34.65	27.650	45.1	1.906			1800A	2.78	34.65	27.646	45.3	1.873				
1900A	2.78	34.69	27.680	42.3	1.961			1900A	2.80	34.69	27.678	42.5	1.928				
2000A	2.85	34.74	27.713	39.1	2.015			2000A	2.83	34.74	27.715	38.9	1.981				
2100A	2.89	34.78	27.741	36.4	2.066			2100A	2.84	34.77	27.738	36.8	2.033				
2200A	2.93	34.81	27.762	34.5	2.116			2200A	2.85	34.80	27.761	34.6	2.083				
2300A	2.95	34.84	27.784	32.4	2.165			2300A	2.85	34.82	27.777	33.1	2.131				
2400A	2.93	34.86	27.802	30.7	2.212			2400A	2.85	34.84	27.793	31.6	2.179				
2500A	2.90	34.87	27.812	29.7	2.259			2500A	2.76	34.84	27.801	30.8	2.226				
2600A	2.84	34.86	27.826	28.5	2.305			2600A	2.69	34.85	27.815	29.5	2.272				
2700A	2.74	34.87	27.827	28.4	2.351			2700A	2.61	34.85	27.822	28.8	2.318				
2800A	2.64	34.87	27.836	27.5	2.396			2800A	2.54	34.85	27.828	28.2	2.363				
2900A	2.50	34.85	27.832	27.9	2.441			2900A	2.43	34.85	27.836	27.3	2.407				
3000A	2.41	34.86	27.848	26.4	2.484			3000A	2.27	34.83	27.835	27.6	2.450				
3100A	2.27	34.84	27.843	26.8	2.527			3100A	2.12	34.82	27.840	27.2	2.492				
3200A	1.97	34.80	27.836	27.5	2.570			3200A	1.93	34.80	27.839	27.2	2.534				
3300A	1.75	34.78	27.837	27.4	2.610			3300A	1.79	34.79	27.842	27.0	2.575				
3400A	1.59	34.77	27.841	27.0	2.650			3400A	1.62	34.78	27.847	26.5	2.614				
3500A	1.41	34.76	27.846	26.6	2.688			3500A	1.50	34.77	27.847	26.4	2.652				
3600A	1.30	34.75	27.846	26.6	2.725			3600A	1.35	34.76	27.850	26.2	2.689				
3700A	1.12	34.74	27.850	26.2	2.760			3700A	1.21	34.75	27.852	26.0	2.725				
3800A	0.95	34.72	27.845	26.6	2.795			3800A	1.06	34.74	27.854	25.8	2.760				
3900A	0.82	34.71	27.846	26.6	2.828			3900A	0.86	34.72	27.851	26.1	2.793				
4000A	0.68	34.70	27.846	26.5	2.860			4000A	0.69	34.70	27.846	26.6	2.825				
4200A	0.43	34.69	27.853	25.9	2.920			4100A	0.56	34.69	27.846	26.6	2.856				
4300A	0.36	34.69	27.857	25.5	2.947			4200A	0.42	34.68	27.846	26.6	2.886				
4400A	0.32	34.68	27.851	26.0	2.975			4300A	0.34	34.68	27.850	26.2	2.914				
4500A	0.28	34.68	27.854	25.8	3.002			4400A	0.26	34.67	27.847	26.5	2.942				
4558A	0.28	34.68	27.854	25.8	3.017			4500A	0.21	34.67	27.849	26.2	2.968				
								4600A	0.17	34.66	27.844	26.8	2.995				
								4693A	0.13	34.65	27.838	27.3	3.019				

## CATO EXPEDITION VI

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	LATITUDE	LONGITUDE	MO/DAT/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	SUNLIGHT		WAVES	
	39 18.0S	37 23.3W	12/	4/72	1554	1909	GRT	5155M	230	6KT	1	130	4	7	
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	ST0T	DT	DD
0	14.96	34.716	6.32	0.49	1.5	4.7	222.4	0	14.96	34.716	6.32	25.781	222.4	0.000	
21	12.55	34.707	6.29	0.48	1.3	4.5	175.6	10	13.53	34.702	6.31	26.073	194.7	0.021	
42	12.40	34.712	6.43	0.50	1.5	4.6	172.4	20	12.61	34.707	6.29	26.461	176.8	0.039	
63	12.24	34.730	6.23	0.54	2.1	5.1	168.1	30	12.49	34.710	6.36	26.288	174.2	0.057	
84	10.80	34.733	6.12	0.74	3.0	9.4	142.4	50	12.34	34.719	6.37	26.525	170.8	0.092	
105	10.46	34.735	6.07	0.80	3.3	10.0	136.6	75	11.43	34.730	6.16	26.506	153.5	0.133	
137	9.40	34.595	6.15	0.90	3.5	12.2	129.8	100	10.50	34.739	6.08	26.680	137.1	0.170	
179	8.51	34.548	5.92	1.14	4.8	15.6	119.8	125	9.82	34.652	6.12	26.730	132.3	0.204	
210	8.13	34.542	6.04	1.16	5.2	15.5	114.7	150	9.07	34.571	6.07	26.791	126.6	0.237	
262	7.33	34.491	5.88	1.33	7.1	18.7	107.4	200	8.24	34.544	6.00	26.900	116.2	0.299	
340	5.29	34.256	6.09	1.63	9.9	23.8	99.7	250	7.54	34.510	5.93	26.977	108.9	0.358	
417	4.49	34.194	6.22	1.73	12.6	25.0	95.7	300	6.32	34.373	5.95	27.038	103.2	0.413	
519	4.01	34.187	6.14	1.83	16.8	26.8	91.4	400	4.60	34.201	6.20	27.109	96.4	0.517	
578A	3.77	34.189	6.00	1.88	19.6	27.9	89.0	500	4.07	34.186	6.15	27.154	92.2	0.615	
681A	3.35	34.208	5.79	1.99	25.0	30.6	83.6	600	3.68	34.193	5.96	27.199	87.9	0.710	
784A	3.01	34.244	5.95	2.03	34.0	28.0U	77.9	700	3.28	34.214	5.73	27.254	82.6	0.800	
887A	2.72	34.293	5.15	2.25U	42.4	32.9	71.8	800	2.96	34.252	5.40	27.314	77.0	0.885	
990A	2.58	34.348	4.89	2.20	49.4	33.3	66.5	1000	2.57	34.354	4.87	27.430	66.0	1.039	
1092A	2.49	34.396	4.70	2.27	56.1	33.3	62.1	1200	2.49	34.450	4.50	27.513	58.1	1.175	
1195A	2.49	34.447	4.51	2.32	60.5	33.3	58.3	1500	2.62	34.614	4.32	27.633	46.8	1.355	
1400A	2.57	34.561	4.28	2.24	66.3	31.9	50.3	1750	2.76	34.727	4.56	27.711	39.4	1.488	
1605A	2.67	34.664	4.37	2.13	66.7	30.7	43.3	2000	2.63	34.806	4.94	27.767	34.0	1.610	
1912A	2.84	34.784	4.82	1.88	56.7	27.9	35.7	2250	2.80	34.849	5.22	27.005	30.4	1.726	
2219A	2.81	34.883	5.19	1.70	50.8	24.8	30.8	2500	2.57	34.844	5.26	27.021	28.8	1.837	
2423A	2.68	34.853	5.31	1.64	52.8	24.3	29.1	2750	2.21	34.615	5.08	27.829	28.1	1.944	
2628A	2.37	34.829	5.14	1.75	63.6	25.9	28.4	3000	1.84	34.784	4.97	27.832	27.8	2.047	
2935A	1.96	34.795	5.01	1.87	78.2	26.8	27.8	3250	1.40	34.744	4.86	27.833	27.8	2.144	
3345A	1.23	34.728	4.83	2.05	108.1	30.6	27.8	3500	1.03	34.717	4.66	27.837	27.4	2.235	
3756A	0.746	34.703	4.96	2.18	120.0	31.7	26.7	3750	0.75	34.704	4.96	27.844	26.7	2.318	
4170A	0.329	34.683	5.13	2.23	126.9	32.0	25.9	4000	0.48	34.690	5.06	27.850	26.1	2.394	
4584A	0.193	34.670	5.24	2.23	129.4	32.4	26.1	4250	0.29	34.680	5.16	27.853	25.9	2.464	
5003A	0.159	34.670	5.25	2.27	129.9	32.4	26.0	4500	0.21	34.672	5.22	27.851	26.1	2.530	
5109A	0.163	34.670	5.25	2.25	130.2	31.6	26.0	4750	0.18	34.671	5.24	27.851	26.1	2.595	
								5000	0.16	34.671	5.25	27.852	26.0	2.666	

## CATO EXPEDITION VI

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	LATITUDE		LONGITUDE		MO/DAT/YR		MESSAGE		TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES			
	40 25.0S		39 27.1W		12/ 5/72		0844 1130		GMT		5172M		030		5KT		2		110 3 8			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	S10T	DT	DD							
0	13.49	34.572	6.41	0.60	1.1	5.6	203.4	0	13.49	34.572	6.41	25.981	203.4	0.000								
21	11.70	34.586	6.61	0.53	0.9	5.4	169.0	10	12.35	34.576	6.51	26.212	161.5	0.019								
31	11.67	34.591	6.56	0.57	0.9	5.9	168.0	20	11.73	34.586	6.60	26.337	169.6	0.037								
63	12.19	34.954	5.93	0.60	2.2	7.5	150.7	30	11.67	34.592	6.57	26.352	168.1	0.054								
95	11.73	34.992	5.88	0.72	2.8	9.1	139.6	50	11.98	34.794	6.19	26.452	158.7	0.087								
126	11.21	34.913	5.69	0.84	3.2	11.1	136.2	75	12.08	34.994	5.91	26.588	145.7	0.125								
158	10.54	34.804	5.55	0.98	4.0	12.9	130.2	100	11.65	34.983	5.85	26.660	138.9	0.161								
207	9.47	34.700	5.61	1.14	5.2	15.3	123.1	125	11.23	34.916	5.70	26.688	136.3	0.196								
262	7.89	34.482	5.70	1.33	6.5	19.0	115.8	150	10.71	34.858	5.58	26.736	131.7	0.231								
313	6.84	34.38	5.68	1.49	8.4	21.1	109.2	200	9.63	34.723	5.60	26.817	124.0	0.297								
364	6.03	34.322	5.77	1.63	9.9	22.7	103.4	250	8.23	34.527	5.68	26.888	117.3	0.359								
414A	4.92	34.224	6.06	1.71	11.9	24.6	98.0	300	7.08	34.400	5.68	26.957	110.8	0.418								
517A	4.38	34.212	6.19	1.80	14.2	25.5	93.2	400	5.22	34.250	5.98	27.077	99.4	0.528								
620A	4.01	34.218	5.89	1.83	20.0	26.3	89.1	500	4.47	34.219	6.17	27.137	93.7	0.630								
723A	3.48	34.216	5.79	2.03	25.0	28.4	84.2	600	4.08	34.218	5.96	27.178	89.9	0.726								
826A	3.22	34.251	5.46	2.06	32.2	30.9	79.2	700	3.59	34.216	5.81	27.226	85.3	0.820								
1032A	2.83	34.341	4.88	2.25	45.8	32.2	69.1	800	3.27	34.241	5.55	27.277	80.5	0.908								
1237A	2.54	34.435	4.55	2.34	59.5	33.8	59.6	1000	2.88	34.327	4.96	27.380	70.6	1.071								
1442A	2.54	34.537	4.29	2.30	67.0	33.4	51.9	1200	2.58	34.418	4.60	27.480	61.2	1.216								
1646A	2.60	34.631	4.28	2.22	69.0	31.4	45.3	1500	2.56	34.567	4.29	27.600	49.9	1.406								
1952A	2.63	34.736	4.53	2.03	67.2	29.1	37.6	1750	2.61	34.672	4.34	27.679	42.4	1.545								
2258A	2.58	34.801	4.68	1.86	63.8	27.4	32.2	2000	2.63	34.750	4.59	27.741	36.5	1.672								
2462A	2.49	34.813	5.01	1.83	63.9	26.6	30.6	2250	2.58	34.800	4.87	27.785	32.3	1.790								
2666A	2.28	34.804	4.98	1.87	70.9	27.4	29.6	2500	2.46	34.612	5.00	27.805	30.4	1.903								
2972A	1.91	34.777	4.88	1.96	83.9	28.5	28.8	2750	2.18	34.797	4.95	27.816	29.3	2.012								
3382A	1.339	34.736	4.88	2.10	106.5	29.6	27.9	3000	1.87	34.774	4.88	27.823	28.8	2.118								
3792A	0.908	34.712	4.90	2.18	117.6	31.0	27.0	3250	1.52	34.749	4.88	27.828	26.2	2.218								
4204A	0.456	34.689	5.01	2.24	126.2	32.3	26.1	3500	1.21	34.729	4.89	27.834	27.6	2.312								
4618A	0.236	34.675	5.22	2.27	126.9	31.9	26.0	3750	0.95	34.715	4.90	27.840	27.1	2.400								
5034A	0.194	34.671	5.22	2.27	132.9	32.7	26.1	4000	0.67	34.700	4.94	27.846	26.5	2.462								
5139A	0.188	34.672	5.23	2.51	130.3	32.5	26.0	4250	0.42	34.687	5.04	27.851	26.1	2.556								
								4500	0.28	34.678	5.17	27.852	26.0	2.626								
								4750	0.22	34.674	5.22	27.852	26.0	2.692								
								5000	0.20	34.672	5.22	27.851	26.1	2.755								



43 STD						CATO EXPEDITION VI						44 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
39 18.0S	37 23.3E	12/04/72	1420 GMT			40 25.0S	39 27.1W	12/05/72	0708 GMT								
Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD	Z	T	S	SIGMA T	DT	DD
0	13.52	34.69	26.066	195.3	0.000	0	13.49	34.53	25.949	206.5	0.000	0	13.49	34.53	25.949	206.5	0.000
10	12.69	34.69	26.233	179.4	0.019	10	11.81	34.57	26.311	172.1	0.019	10	11.81	34.57	26.311	172.1	0.019
20	12.54	34.70	26.271	175.9	0.037	20	11.67	34.59	26.353	168.1	0.036	20	11.67	34.59	26.353	168.1	0.036
30	12.50	34.72	26.294	173.7	0.054	30	11.65	34.59	26.356	167.8	0.053	30	11.65	34.59	26.356	167.8	0.053
40	12.50	34.73	26.302	172.9	0.072	40	11.74	34.71	26.432	160.5	0.069	40	11.74	34.71	26.432	160.5	0.069
50	12.43	34.74	26.323	170.9	0.089	50	12.14	34.87	26.480	156.0	0.085	50	12.14	34.87	26.480	156.0	0.085
60	11.73	34.76	26.484	155.2	0.105	60	12.19	34.96	26.540	150.3	0.101	60	12.19	34.96	26.540	150.3	0.101
70	11.57	34.79	26.526	151.6	0.121	70	12.22	35.04	26.596	145.0	0.116	70	12.22	35.04	26.596	145.0	0.116
80	10.92	34.77	26.630	141.8	0.136	80	12.10	35.07	26.643	140.6	0.130	80	12.10	35.07	26.643	140.6	0.130
90	10.68	34.74	26.650	139.7	0.150	90	11.85	35.02	26.652	139.7	0.144	90	11.85	35.02	26.652	139.7	0.144
100	10.50	34.71	26.659	139.1	0.164	100	11.76	35.00	26.653	139.5	0.159	100	11.76	35.00	26.653	139.5	0.159
125	9.60	34.63	26.751	130.4	0.198	125	11.22	34.89	26.669	136.1	0.194	125	11.22	34.89	26.669	136.1	0.194
150	8.97	34.55	26.791	126.5	0.231	150	10.71	34.86	26.738	131.5	0.228	150	10.71	34.86	26.738	131.5	0.228
200	8.14	34.55	26.920	114.3	0.293	200	9.57	34.71	26.816	124.0	0.294	200	9.57	34.71	26.816	124.0	0.294
250	7.42	34.48	26.971	109.4	0.351	250	7.94	34.44	26.864	119.6	0.357	250	7.94	34.44	26.864	119.6	0.357
300	5.92	34.29	27.024	104.5	0.406	300	7.11	34.41	26.960	110.5	0.417	300	7.11	34.41	26.960	110.5	0.417
350	4.99	34.20	27.065	100.6	0.460	350	6.31	34.32	26.998	106.9	0.474	350	6.31	34.32	26.998	106.9	0.474
400	4.57	34.17	27.088	98.3	0.511	400A	4.96	34.23	27.092	98.0	0.527	400A	4.96	34.23	27.092	98.0	0.527
450	4.29	34.17	27.119	95.5	0.562	450A	4.69	34.21	27.107	96.6	0.578	450A	4.69	34.21	27.107	96.6	0.578
500	4.18	34.16	27.122	95.1	0.612	500A	4.44	34.20	27.126	94.7	0.629	500A	4.44	34.20	27.126	94.7	0.629
550A	3.91	34.16	27.150	92.5	0.661	550A	4.29	34.21	27.150	92.5	0.678	550A	4.29	34.21	27.150	92.5	0.678
600A	3.71	34.17	27.178	89.8	0.709	600A	4.09	34.23	27.187	89.0	0.726	600A	4.09	34.23	27.187	89.0	0.726
650A	3.50	34.17	27.199	87.9	0.756	650A	3.92	34.23	27.205	87.3	0.773	650A	3.92	34.23	27.205	87.3	0.773
700A	3.30	34.19	27.234	84.6	0.801	700A	3.57	34.21	27.224	85.5	0.819	700A	3.57	34.21	27.224	85.5	0.819
750A	3.14	34.20	27.257	82.4	0.846	750A	3.49	34.22	27.240	84.0	0.864	750A	3.49	34.22	27.240	84.0	0.864
800A	3.01	34.23	27.293	79.0	0.889	800A	3.33	34.24	27.271	81.1	0.908	800A	3.33	34.24	27.271	81.1	0.908
850A	2.89	34.26	27.327	75.7	0.930	850A	3.17	34.26	27.302	78.1	0.951	850A	3.17	34.26	27.302	78.1	0.951
900A	2.75	34.28	27.356	73.0	0.970	900A	3.10	34.26	27.324	76.0	0.992	900A	3.10	34.26	27.324	76.0	0.992
950A	2.67	34.30	27.376	70.8	1.008	950A	2.95	34.29	27.346	74.0	1.033	950A	2.95	34.29	27.346	74.0	1.033
1000A	2.59	34.33	27.409	67.9	1.046	1000A	2.84	34.31	27.372	71.5	1.072	1000A	2.84	34.31	27.372	71.5	1.072
1100A	2.51	34.39	27.464	62.6	1.117	1100A	2.66	34.37	27.435	65.5	1.147	1100A	2.66	34.37	27.435	65.5	1.147
1200A	2.50	34.45	27.513	58.1	1.184	1200A	2.56	34.41	27.476	61.6	1.217	1200A	2.56	34.41	27.476	61.6	1.217
1300A	2.56	34.50	27.548	54.8	1.247	1300A	2.54	34.46	27.517	57.7	1.284	1300A	2.54	34.46	27.517	57.7	1.284
1400A	2.59	34.56	27.593	50.5	1.308	1400A	2.54	34.52	27.565	53.2	1.347	1400A	2.54	34.52	27.565	53.2	1.347
1500A	2.59	34.62	27.641	46.0	1.364	1500A	2.56	34.58	27.611	48.8	1.406	1500A	2.56	34.58	27.611	48.8	1.406
1600A	2.69	34.66	27.664	43.6	1.419	1600A	2.58	34.62	27.641	45.9	1.462	1600A	2.58	34.62	27.641	45.9	1.462
1700A	2.70	34.70	27.695	40.9	1.471	1700A	2.57	34.65	27.666	43.6	1.517	1700A	2.57	34.65	27.666	43.6	1.517
1800A	2.83	34.75	27.723	38.2	1.522	1800A	2.62	34.68	27.686	41.7	1.570	1800A	2.62	34.68	27.686	41.7	1.570
1900A	2.87	34.78	27.743	36.3	1.571	1900A	2.73	34.75	27.735	38.9	1.621	1900A	2.73	34.75	27.735	38.9	1.621
2000A	2.88	34.81	27.766	34.1	1.620	2000A	2.61	34.74	27.735	37.1	1.671	2000A	2.61	34.74	27.735	37.1	1.671
2100A	2.90	34.84	27.789	32.0	1.667	2100A	2.59	34.76	27.752	35.4	1.720	2100A	2.59	34.76	27.752	35.4	1.720
2200A	2.83	34.84	27.795	31.4	1.713	2200A	2.59	34.79	27.776	33.2	1.767	2200A	2.59	34.79	27.776	33.2	1.767
2300A	2.81	34.86	27.813	29.7	1.758	2300A	2.56	34.80	27.787	32.2	1.813	2300A	2.56	34.80	27.787	32.2	1.813
2400A	2.68	34.86	27.824	28.6	1.807	2400A	2.48	34.81	27.802	30.7	1.858	2400A	2.48	34.81	27.802	30.7	1.858
2500A	2.58	34.85	27.825	28.5	1.846	2500A	2.43	34.81	27.806	30.4	1.903	2500A	2.43	34.81	27.806	30.4	1.903
2600A	2.40	34.84	27.832	27.6	1.889	2600A	2.37	34.82	27.819	29.1	1.947	2600A	2.37	34.82	27.819	29.1	1.947
2700A	2.27	34.83	27.835	27.6	1.931	2700A	2.26	34.81	27.820	29.0	1.990	2700A	2.26	34.81	27.820	29.0	1.990
2800A	2.13	34.82	27.839	27.2	1.972	2800A	2.18	34.80	27.819	29.1	2.033	2800A	2.18	34.80	27.819	29.1	2.033
2900A	1.99	34.80	27.834	27.7	2.013	2900A	2.15	34.81	27.829	28.1	2.075	2900A	2.15	34.81	27.829	28.1	2.075
3000A	1.80	34.79	27.841	27.0	2.053	3000A	1.90	34.77	27.817	29.3	2.117	3000A	1.90	34.77	27.817	29.3	2.117
3100A	1.55	34.77	27.844	26.8	2.091	3100A	1.85	34.76	27.825	28.2	2.159	3100A	1.85	34.76	27.825	28.2	2.159
3200A	1.41	34.76	27.846	26.6	2.128	3200A	1.70	34.77	27.832	27.8	2.199	3200A	1.70	34.77	27.832	27.8	2.199
3300A	1.28	34.75	27.847	26.5	2.164	3300A	1.50	34.75	27.831	27.9	2.239	3300A	1.50	34.75	27.831	27.9	2.239
3400A	1.17	34.74	27.847	26.5	2.199	3400A	1.32	34.74	27.836	27.5	2.276	3400A	1.32	34.74	27.836	27.5	2.276
3500A	1.07	34.73	27.845	26.6	2.233	3500A	1.23	34.73	27.834	27.7	2.313	3500A	1.23	34.73	27.834	27.7	2.313
3600A	0.93	34.73	27.854	25.7	2.267	3600A	1.16	34.73	27.839	27.2	2.349	3600A	1.16	34.73	27.839	27.2	2.349
3700A	0.81	34.72	27.854	25.6	2.299	3700A	1.03	34.72	27.840	27.1	2.385	3700A	1.03	34.72	27.840	27.1	2.385
3800A	0.68	34.71	27.854	25.6	2.330	3800A	0.90	34.71	27.840	27.1	2.419	3800A	0.90	34.71	27.840	27.1	2.419
3900A	0.55	34.71	27.862	25.0	2.359	3900A	0.75	34.70	27.842	26.9	2.452	3900A	0.75	34.70	27.842	26.9	2.452
4000A	0.47	34.71	27.867	24.6	2.387	4000A	0.64	34.69	27.841	27.1	2.484	4000A	0.64	34.69	27.841	27.1	2.484
4100A	0.37	34.70	27.865	24.8	2.414	4100A	0.50	34.69	27.849	26.3	2.514	4100A	0.50	34.69	27.849	26.3	2.514
4200A	0.32	34.69	27.859	25.3	2.441	4200A	0.42	34.69	27.854	25.8	2.543	4200A	0.42	34.69	27.854	25.8	2.543
4300A	0.27	34.70	27.870	24.3	2.467	4300A	0.37	34.68	27.849	26.3	2.571	4300A	0.37	34.68	27.849	26.3	2.571
4400A	0.23	34.69	27.864	24.8	2.492	4400A	0.29	34.68	27.853	25.9	2.599	4400A	0.29	34.68	27.853	25.9	2.599
4500A	0.21	34.69	27.866	24.7	2.517	4500A	0.27	34.68	27.854	25.8	2.626	4500A	0.27	34.68	27.854	25.8	2.626
4600A	0.19	34.68	27.859	25.4													

## RV MELVILLE

## CATO EXPEDITION VI

45

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME		POTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
41 28.65		41 52.3W		12/ 6/72		0119 0416		GMT		S164M		07U		10KT		1		310 7	
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S104	DT	DD				
0	12.81	34.516	6.45	0.62	1.5	7.3	194.5	0	12.81	34.516	6.45	26.075	194.5	0.00					
21	10.58	34.490	6.67	0.68	1.2	7.9	156.7	10	11.56	34.497	6.58	26.300	173.1	0.018					
42	9.82	34.471	6.70	0.73	1.0	9.0	145.6	20	10.65	34.491	6.66	26.461	157.9	0.035					
63	9.52	34.484	6.67	0.78	1.3	9.8	139.9	30	10.14	34.482	6.68	26.544	150.0	0.050					
95	8.82	34.509	6.52	0.89	2.2	11.1	127.3	50	9.69	34.475	6.70	26.615	143.3	0.080					
116	8.28	34.487	6.32	1.01	3.8	14.2	121.0	75	9.28	34.498	6.63	26.699	135.2	0.115					
147	7.98	34.519	6.32	1.08	4.7	15.4	114.3	100	8.68	34.504	6.47	26.800	125.6	0.148					
189	7.30	34.479	5.98	1.32	6.3	19.0	107.4	125	8.17	34.496	6.32	26.873	118.8	0.179					
210	6.79	34.419	6.00	1.40	7.3	21.0	105.6	150	7.94	34.520	6.29	26.926	113.7	0.209					
262	5.32	34.256	6.06	1.63	9.9	24.6	100.0	200	7.04	34.450	5.99	27.001	106.7	0.265					
314	4.66	34.202	6.20	1.72	11.6	25.5	96.9	250	5.64	34.289	6.04	27.058	101.2	0.319					
417	4.07	34.194	6.12	1.82	16.3	27.5	91.5	300	4.79	34.211	6.16	27.096	97.6	0.370					
520	3.58	34.186	6.19	1.90	20.4	29.0	87.4	400	4.13	34.192	6.13	27.152	92.3	0.469					
610A	3.21	34.203	5.77	2.02	26.4	31.2	82.8	500	3.67	34.187	6.18	27.196	88.2	0.563					
622	3.18	34.207	5.76	1.99	27.0	30.4	82.2	600	3.24	34.200	5.81	27.247	83.3	0.653					
713A	2.92	34.245	5.45	2.13	34.3	32.6	77.1	700	2.96	34.239	5.51	27.304	77.8	0.738					
816A	2.78	34.299	5.01	2.12	41.6	32.7	71.8	800	2.80	34.291	5.07	27.360	72.6	0.817					
919A	2.63	34.350	4.89	2.28	49.7	32.5	66.7	1000	2.55	34.392	4.78	27.461	63.0	0.963					
1022A	2.54	34.403	4.74	2.23	56.0	35.5	62.0	1200	2.53	34.517	4.37	27.563	53.4	1.092					
1228A	2.53	34.533	4.32	2.26	66.8	34.6	52.1	1500	2.57	34.654	4.33	27.669	43.3	1.261					
1433A	2.56	34.622	4.25	2.22	69.7	33.3	45.6	1750	2.58	34.743	4.59	27.739	36.7	1.385					
1741A	2.59	34.742	4.60	1.99	68.9	30.8	36.8	2000	2.28	34.730	4.46	27.754	35.3	1.501					
2048A	2.24	34.726	4.44	2.09	81.8	31.5	35.2	2250	2.43	34.780	4.75	27.782	32.6	1.615					
2253A	2.43	34.781	4.76	1.90	70.8	28.9	32.5	2500	2.40	34.821	5.05	27.817	29.3	1.725					
2458A	2.44	34.821	5.05	1.78	62.8	27.5	29.6	2750	2.04	34.791	4.96	27.823	28.7	1.831					
2662A	2.19	34.805	5.04	1.82	72.2	28.0	28.8	3000	1.60	34.753	4.82	27.826	28.4	1.931					
2970A	1.64	34.756	4.80	2.03	94.4	31.0	28.5	3250	1.28	34.732	4.96	27.832	27.9	2.026					
3277A	1.25	34.730	4.98	2.11	109.6	32.2	27.8	3500	1.04	34.718	4.86	27.837	27.4	2.115					
3585A	0.96	34.713	4.81	2.15	115.2	32.0	27.2	3750	0.77	34.704	4.91	27.844	26.7	2.199					
3996A	0.502	34.692	5.10	2.21	125.4	32.4	26.1	4000	0.50	34.692	5.10	27.851	26.1	2.275					
4202A	0.334	34.680	5.15	2.24	146.8	33.2	26.1	4250	0.31	34.679	5.16	27.851	26.1	2.346					
4512A	0.221	34.674	5.22	2.23	151.5	32.5	26.0	4500	0.22	34.675	5.22	27.852	26.0	2.413					
5031A	0.140	34.668	5.28	2.26	130.4	27.6U	26.0	4750	0.17	34.671	5.26	27.852	26.0	2.478					
5135A	0.138	34.670	5.28	2.26	131.9	24.7U	25.9	5000	0.14	34.669	5.28	27.852	26.0	2.542					

45 STD						CATO EXPEDITION VI						46 STD					
LATITUDE 41 28.6S		LONGITUDE 41 52.3W		MO/DAY/YR 12/05/72		START TIME 2328 GMT		LATITUDE 40 47.7S		LONGITUDE 42 31.1W		MO/DAY/YR 12/06/72		START TIME 1033 GMT			
Z	T	S	SIGMA T	DT	DO			Z	T	S	SIGMA T	DT	DO				
0	12.84	34.55	26.096	192.5	0.000			0	14.76	35.07	26.097	192.4	0.000				
20	10.30	34.50	26.530	151.3	0.034			10	14.74	35.07	26.101	192.0	0.019				
30	10.11	34.49	26.555	148.9	0.049			20	14.48	35.26	26.319	171.3	0.037				
40	9.89	34.50	26.600	144.6	0.064			30	14.49	35.31	26.340	169.3	0.055				
50	9.79	34.51	26.625	142.3	0.079			40	14.45	35.31	26.348	168.5	0.072				
60	9.62	34.51	26.654	139.6	0.093			50	13.95	35.25	26.409	162.8	0.086				
70	9.24	34.51	26.716	133.6	0.107			60	12.80	35.11	26.576	146.9	0.104				
80	8.97	34.54	26.783	127.3	0.120			70	11.90	34.99	26.619	142.8	0.119				
90	8.87	34.53	26.791	126.5	0.133			80	12.40	35.16	26.654	139.5	0.133				
100	8.66	34.56	26.846	121.1	0.145			90	11.45	35.05	26.750	130.3	0.147				
120	8.08	34.50	26.890	117.1	0.176			100	11.11	35.05	26.813	124.4	0.160				
150	7.99	34.56	26.951	111.4	0.205			125	11.25	35.11	26.834	122.4	0.191				
200	6.76	34.42	27.016	105.2	0.260			150	11.68	35.23	26.847	121.2	0.222				
250	5.49	34.26	27.053	101.7	0.314			200	10.89	35.06	26.861	119.9	0.285				
300	4.86	34.21	27.088	98.4	0.365			250	8.69	34.60	26.875	118.6	0.347				
350	4.44	34.16	27.111	96.3	0.416			300	6.65	34.30	26.937	112.7	0.407				
400	4.15	34.18	27.141	93.3	0.465			350	5.87	34.25	26.995	106.6	0.464				
450	3.89	34.17	27.160	91.5	0.513			400	5.23	34.21	27.045	102.5	0.519				
500	3.69	34.18	27.184	88.9	0.560			450	4.91	34.19	27.066	100.5	0.572				
550	3.51	34.19	27.214	86.5	0.606			500	4.57	34.18	27.096	97.6	0.624				
600	3.26	34.19	27.238	84.2	0.651			550	4.30	34.18	27.126	94.8	0.674				
650A	3.10	34.22	27.276	80.5	0.694			600	4.08	34.16	27.133	94.1	0.724				
700A	2.95	34.24	27.308	77.7	0.736			650	3.73	34.15	27.160	91.5	0.773				
750A	2.89	34.27	27.335	74.9	0.776			700	3.54	34.17	27.195	88.2	0.821				
800A	2.80	34.29	27.359	72.7	0.815			750	3.41	34.18	27.216	86.3	0.867				
850A	2.72	34.31	27.382	70.5	0.854			800	3.29	34.20	27.243	83.7	0.913				
900A	2.65	34.34	27.412	67.7	0.891			850	3.12	34.21	27.267	81.5	0.957				
950A	2.59	34.37	27.441	64.9	0.926			900	3.02	34.24	27.300	78.3	1.000				
1000A	2.55	34.39	27.461	63.1	0.961			950	2.96	34.28	27.337	74.8	1.041				
1100A	2.53	34.46	27.518	57.6	1.027			1000	2.84	34.31	27.372	71.5	1.080				
1200A	2.55	34.52	27.564	53.2	1.089			1100	2.75	34.36	27.419	67.0	1.156				
1300A	2.54	34.55	27.589	50.9	1.149			1200	2.69	34.41	27.464	62.7	1.228				
1400A	2.55	34.61	27.636	46.4	1.205			1300	2.71	34.47	27.510	58.3	1.296				
1500A	2.58	34.66	27.673	42.9	1.258			1400	2.73	34.53	27.557	54.0	1.360				
1600A	2.65	34.71	27.707	39.7	1.309			1500	2.73	34.57	27.584	51.0	1.421				
1700A	2.60	34.73	27.727	37.6	1.358			1600	2.73	34.62	27.628	47.2	1.480				
1800A	2.58	34.75	27.745	36.1	1.405			1700	2.60	34.65	27.646	45.5	1.537				
1900A	2.41	34.75	27.760	34.7	1.451			1800	2.87	34.70	27.680	42.3	1.592				
2000A	2.25	34.72	27.749	35.7	1.497			1900	2.87	34.74	27.711	39.3	1.645				
2100A	2.30	34.75	27.769	33.8	1.542			2000	2.91	34.76	27.740	36.6	1.696				
2200A	2.38	34.77	27.778	33.0	1.587			2100	2.87	34.80	27.759	34.8	1.745				
2300A	2.47	34.80	27.795	31.4	1.632			2200	2.67	34.78	27.761	34.6	1.794				
2400A	2.47	34.83	27.818	29.2	1.676			2300	2.67	34.81	27.785	32.5	1.841				
2500A	2.37	34.81	27.811	29.9	1.719			2400	2.58	34.82	27.801	30.8	1.887				
2600A	2.32	34.82	27.823	28.7	1.762			2500	2.62	34.84	27.813	29.6	1.932				
2700A	2.10	34.78	27.809	30.0	1.805			2600	2.51	34.84	27.823	28.7	1.976				
2800A	1.93	34.79	27.831	28.0	1.846			2700	2.42	34.84	27.831	28.0	2.020				
2900A	1.74	34.76	27.821	28.9	1.887			2800	2.26	34.82	27.828	26.2	2.063				
3000A	1.60	34.76	27.832	27.9	1.926			2900	2.08	34.80	27.827	26.4	2.105				
3100A	1.46	34.74	27.826	28.4	1.964			3000	1.80	34.77	27.825	28.6	2.146				
3200A	1.33	34.73	27.827	28.3	2.002			3100	1.65	34.76	27.828	28.2	2.186				
3300A	1.22	34.73	27.835	27.6	2.039			3200	1.53	34.75	27.829	28.2	2.226				
3400A	1.11	34.72	27.835	27.6	2.074			3300	1.40	34.75	27.838	27.3	2.264				
3500A	1.03	34.72	27.840	27.1	2.109			3400	1.25	34.74	27.836	27.3	2.300				
3600A	0.93	34.71	27.838	27.3	2.143			3500	1.17	34.73	27.838	27.3	2.337				
3700A	0.83	34.71	27.845	26.7	2.177			3600	1.06	34.73	27.846	26.6	2.372				
3800A	0.70	34.70	27.845	26.7	2.209			3700	0.96	34.72	27.845	26.7	2.406				
3900A	0.59	34.69	27.844	26.8	2.240			3800	0.85	34.71	27.844	26.8	2.439				
4000A	0.48	34.69	27.850	26.2	2.269			3900	0.71	34.71	27.852	26.0	2.471				
4100A	0.40	34.69	27.855	25.7	2.298			4000	0.61	34.70	27.851	26.0	2.502				
4200A	0.33	34.68	27.851	26.1	2.326			4100	0.54	34.70	27.855	25.7	2.532				
4300A	0.29	34.68	27.853	25.9	2.353			4200	0.48	34.69	27.850	26.2	2.561				
4400A	0.25	34.68	27.855	25.7	2.379			4300	0.43	34.69	27.853	25.9	2.590				
4500A	0.22	34.67	27.849	26.3	2.406			4400	0.33	34.68	27.851	26.1	2.618				
4600A	0.21	34.68	27.857	25.5	2.432			4500	0.22	34.67	27.849	26.3	2.645				
4700A	0.19	34.67	27.851	26.1	2.458			4600	0.17	34.67	27.852	26.0	2.671				
4800A	0.19	34.67	27.851	26.1	2.484			4700	0.17	34.66	27.844	26.8	2.697				
4900A	0.18	34.67	27.851	26.1	2.510			4800	0.17	34.66	27.844	26.8	2.723				
5000A	0.16	34.67	27.852	26.0	2.536			4900	0.17	34.66	27.844	26.8	2.750				
5100A	0.13	34.67	27.854	25.8	2.561			5000	0.16	34.66	27.843	26.8	2.776				
5162A	0.14	34.67	27.853	25.9	2.577			5100	0.17	34.66	27.844	26.8	2.803				
								5141	0.16	34.65	27.836	27.5	2.814				

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 40 10.2S		LONGITUDE 43 10.0W		MO/DAY/YR 12/ 6/72		MESSENGER 2029 2329		TIME GMT		BOTTOM 5135M		WIND 090		SPEED 22KT		WEATHER 2		DOMINANT WAVES 120 5 4	
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S10T	DT	UD				
0	16.47	35.680	5.76	0.15	1.4	0.0	184.6	0	16.47	35.680	5.76	26.179	184.6	0.000					
21	16.48	35.681	5.77	0.12	1.3	0.0	184.7	10	16.47	35.680	5.76	26.178	184.7	0.018					
31	16.47	35.677	5.79	0.13	1.5	0.0	184.8	20	16.48	35.680	5.77	26.177	184.7	0.037					
41	16.48	35.679	5.80	0.14	1.3	0.0	184.9	30	16.47	35.676	5.79	26.176	184.8	0.056					
73	16.48	35.834	5.16	0.23	1.4	1.3	173.6	50	16.48	35.713	5.62	26.202	182.4	0.093					
104	15.76	35.708	5.57	0.30	1.7	1.7	167.0	75	16.44	35.827	5.18	26.299	173.1	0.137					
135	15.35	35.686	5.64	0.30	1.8	2.8	159.8	100	15.86	35.728	5.50	26.356	167.7	0.181					
176	14.84	35.607	5.46	0.37	1.9	3.8	154.8	125	15.46	35.688	5.62	26.417	162.0	0.223					
228	14.49	35.582	5.41	0.46	2.5	5.4	149.4	150	15.15	35.656	5.58	26.463	157.6	0.264					
290	13.37	35.368	5.66	0.51	3.4	6.2	142.7	200	14.69	35.599	5.44	26.519	152.3	0.344					
363	11.68	35.055	4.90	0.94	4.8	13.4	134.1	250	14.15	35.520	5.53	26.574	147.1	0.422					
466	9.01	34.690	4.96	1.30	8.5	19.3	116.7	300	13.16	35.325	5.57	26.652	141.6	0.498					
569	6.33	34.381	5.51	1.58	11.6	23.4	102.6	400	10.74	34.914	4.92	26.775	128.0	0.642					
672	5.11	34.280	5.82	1.71	14.3	24.8	95.9	500	8.05	34.570	5.13	26.949	111.5	0.771					
699A	4.70	34.250	5.92	1.72	15.0	18.6	93.7	600	5.91	34.345	5.61	27.068	100.4	0.885					
775	4.58	34.277	5.62	1.82	19.3	27.8	90.4	700	4.70	34.251	5.92	27.138	93.7	0.990					
802A	4.11	34.244	5.74	1.89	20.5	25.7	88.1	800	4.15	34.248	5.73	27.195	86.3	1.068					
877	3.91	34.249	5.65	1.94	23.8	28.9	85.8	1000	3.88	34.278	5.29	27.295	78.8	1.270					
905A	3.67	34.247	5.55	1.88	26.5	28.4	83.6	1200	3.00	34.371	4.80	27.405	68.3	1.432					
1008A	3.38	34.281	5.27	1.610	33.5	30.3	78.4	1500	2.75	34.524	4.39	27.549	54.7	1.642					
1111A	3.20	34.338	4.97	1.600	39.7	32.5	72.5	1750	2.78	34.647	4.40	27.645	45.6	1.792					
1315A	2.79	34.413	4.64	2.22	53.2	33.2	63.3	2000	2.93	34.762	4.71	27.724	38.1	1.928					
1519A	2.75	34.534	4.37	2.23	60.7	33.2	53.8	2250	3.00	34.839	5.16	27.779	32.9	2.053					
1826A	2.79	34.678	4.41	2.08	63.5	31.5	43.3	2500	2.73	34.847	5.11	27.810	30.0	2.171					
2133A	3.02	34.816	4.98	1.74	50.4	26.3	34.9	2750	2.49	34.833	5.10	27.820	28.9	2.284					
2337A	2.98	34.853	5.24	1.63	47.5	24.3	31.7	3000	2.16	34.805	5.00	27.825	28.6	2.394					
2541A	2.66	34.844	5.07	1.71	50.1	26.8	29.7	3250	1.77	34.775	4.91	27.831	27.9	2.499					
2848A	2.41	34.829	5.12	1.70	63.8	26.2	28.4	3500	1.45	34.757	4.98	27.841	27.0	2.597					
3155A	1.89	34.781	4.89	1.94	85.9	29.2	28.4	3750	1.03	34.724	4.94	27.843	26.9	2.688					
3462A	1.51	34.763	4.98	1.98	96.1	30.3	27.0	4000	0.67	34.701	4.99	27.847	26.5	2.770					
3770A	1.00	34.721	4.94	2.09	112.5	29.10	26.9	4250	0.40	34.685	5.08	27.851	26.1	2.845					
4080A	0.576	34.695	5.02	2.18	124.1	29.40	26.3	4500	0.23	34.676	5.18	27.853	25.9	2.913					
4391A	0.284	34.679	5.13	2.20	126.7	33.7	25.9	4750	0.17	34.674	5.24	27.854	25.8	2.978					
4704A	0.165	34.673	5.25	2.22	130.6	32.9	25.4	5000	0.17	34.675	5.21	27.855	25.7	3.041					
5020A	0.171	34.674	5.21	2.23	132.6	33.0	25.7												
5125A	0.185	34.675	5.23	2.23	130.5	33.0	25.7												

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE 33 40.4S		LONGITUDE 44 15.8W		MO/DAY/YR 12/ 7/72		MESSENGER 1234 1545		TIME GMT	BOTTOM 5146M	WIND 080	SPEED 25KT	WEATHER 2	DOMINANT WAVES 090 10 6						
Z	T	S	02	P04	S103	N02	N03	LT	Z	T	S	02	S10T	DT	UD				
0	18.53	35.753	5.50	0.14	1.3		0.0	226.9	0	18.53	35.753	5.50	25.733	226.9	0.000				
41	18.29	35.751	5.48	0.13	1.1		0.0	221.3	10	18.47	35.751	5.50	25.748	225.5	0.023				
72	17.34	35.850	5.55	0.13	1.2		0.0	191.9	20	18.41	35.751	5.49	25.762	224.2	0.045				
103	16.26	35.736	5.43	0.24	1.7		1.7	175.9	30	18.35	35.750	5.49	25.776	222.8	0.068				
134	15.63	35.707	5.22	0.36	1.7		4.0	164.2	50	18.05	35.785	5.51	25.877	213.2	0.111				
165	15.20	35.652	5.19	0.42	1.8		4.7	159.1	75	17.23	35.840	5.54	26.122	190.0	0.162				
206	14.92	35.634	5.29	0.44	2.0		5.1	154.5	100	16.36	35.749	5.45	26.258	177.0	0.209				
257	14.62	35.607	5.43	0.45	1.9		5.3	150.3	125	15.78	35.712	5.28	26.363	167.1	0.253				
308	13.73	35.414	5.57	0.64	2.5		8.0	146.4	150	15.38	35.677	5.20	26.426	161.1	0.295				
411	9.90	34.776	5.09	1.04	5.0		14.7	124.3	200	14.95	35.634	5.27	26.489	155.1	0.377				
513	7.06	34.452	5.34	1.56	10.0		22.2	106.7	250	14.68	35.615	5.41	26.535	150.8	0.457				
616	5.11	34.237	6.19	1.68	11.0		24.5	99.1	300	13.91	35.452	5.56	26.573	147.1	0.535				
715A	4.51	34.226	6.19	1.78	14.9		23.20	93.5	400	10.35	34.839	5.15	26.785	127.1	0.681				
718	4.45	34.218	6.14	1.77	14.7		26.2	93.6	500	7.37	34.483	5.31	26.981	108.5	0.807				
818A	3.92		5.95	1.80	17.3		24.10		600	5.34	34.262	6.07	27.072	99.9	0.919				
921A	3.54	34.232	5.67	1.92	26.5		28.2	83.6	700	4.65	34.245	6.19	27.139	94.0	1.023				
1024A	3.31	34.279	5.28	2.160	33.1		30.8	77.9	800	4.02	34.197	5.98	27.168	90.7	1.122				
1126A	3.08	34.336	4.97	2.14	41.6		33.2	71.6	1000	3.36	34.267	5.37	27.289	79.3	1.306				
1324A	2.72	34.427	4.54	2.29	55.2		34.1	61.7	1200	2.92	34.371	4.78	27.413	67.6	1.468				
1536A	2.71	34.547	4.34	2.29	60.7		34.2	52.5	1500	2.71	34.529	4.36	27.557	53.9	1.675				
1841A	2.72	34.671	4.39	2.20	64.8		32.4	43.2	1750	2.72	34.639	4.38	27.644	45.7	1.824				
2147A	2.81	34.786	4.81	1.87	58.8		28.2	35.3	2000	2.77	34.736	4.59	27.717	38.8	1.959				
2352A	2.79	34.829	5.07	1.76	53.8		26.2	31.9	2250	2.80	34.810	4.95	27.774	33.4	2.084				
2555A	2.73	34.851	5.23	1.69	51.8		25.3	29.7	2500	2.76	34.848	5.20	27.808	30.2	2.202				
2860A	2.34	34.825	5.16	1.78	63.9		26.9	28.5	2750	2.51	34.840	5.19	27.823	28.7	2.315				
3166A	1.74	34.767	4.84	2.00	89.8		30.4	28.3	3000	2.07	34.798	5.01	27.826	28.4	2.424				
3472A	1.31	34.738	4.87	2.10	103.3		31.3	27.6	3250	1.61	34.757	4.85	27.829	28.2	2.527				
3779A	0.92	34.713	4.87	2.18	114.4		32.5	27.0	3500	1.27	34.736	4.87	27.836	27.5	2.622				
4086A	0.543	34.690	5.06	2.19	121.5		32.8	26.5	3750	0.96	34.716	4.87	27.841	27.0	2.711				
4394A	0.292	34.608	5.11	2.24	116.2		33.4	26.0	4000	0.64	34.696	5.00	27.845	26.6	2.792				
4703A	0.198	34.672	5.19	2.25	127.9		33.5	26.0	4250	0.39	34.683	5.09	27.849	26.2	2.867				
5013A	0.178	34.672	5.18	2.29	129.9		33.5	25.9	4500	0.25	34.676	5.14	27.851	26.0	2.935				
5116A	0.166	34.670	5.24	2.28	128.4		32.8	26.0	4750	0.19	34.673	5.19	27.852	26.0	3.001				
									5000	0.18	34.673	5.18	27.853	25.9	3.060				



47 STD						CATO EXPEDITION VI						48 STD					
LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME			LATITUDE	LONGITUDE	MO/DAY/YR	START TIME		
40 10.2S	43 10.0W	12/06/72	1640 GMT			38 40.4S	44 15.8W	12/07/72	1042 GMT								
Z	T	S	SIGMA T	OT	DO	Z	T	S	SIGMA T	OT	DO	Z	T	S	SIGMA T	OT	DO
0	16.47	35.67	26.171	185.3	0.000	0	18.61	35.76	28.719	228.3	0.000	0	18.61	35.76	28.719	228.3	0.000
10	16.46	35.67	26.173	185.1	0.019	10	18.61	35.77	28.726	227.6	0.023	10	18.61	35.77	28.726	227.6	0.023
20	16.46	35.67	26.173	185.1	0.037	20	18.57	35.76	28.744	225.9	0.046	20	18.57	35.76	28.744	225.9	0.046
30	16.45	35.67	26.175	184.9	0.056	30	18.54	35.79	28.759	224.4	0.068	30	18.54	35.79	28.759	224.4	0.068
40	16.46	35.67	26.173	185.1	0.074	40	18.44	35.78	28.777	222.8	0.091	40	18.44	35.78	28.777	222.8	0.091
50	16.47	35.67	26.171	185.3	0.093	50	18.26	35.75	28.799	220.7	0.113	50	18.26	35.75	28.799	220.7	0.113
60	16.80	35.81	26.200	182.5	0.112	60	18.02	35.74	28.851	215.7	0.135	60	18.02	35.74	28.851	215.7	0.135
70	16.48	35.84	26.299	173.2	0.130	70	17.56	35.84	28.040	197.7	0.156	70	17.56	35.84	28.040	197.7	0.156
80	16.03	35.76	26.342	169.1	0.147	80	17.24	35.88	26.149	187.4	0.175	80	17.24	35.88	26.149	187.4	0.175
90	15.90	35.75	26.364	167.0	0.164	90	16.66	35.78	26.210	181.5	0.194	90	16.66	35.78	26.210	181.5	0.194
100	15.86	35.74	26.366	166.8	0.181	100	16.34	35.77	26.278	175.2	0.212	100	16.34	35.77	26.278	175.2	0.212
125	15.37	35.69	26.438	159.9	0.223	125	15.90	35.74	26.357	167.7	0.256	125	15.90	35.74	26.357	167.7	0.256
150	15.25	35.69	26.465	157.4	0.263	150	15.29	35.66	26.433	160.4	0.298	150	15.29	35.66	26.433	160.4	0.298
200	14.82	35.65	26.530	151.3	0.343	200	14.91	35.64	26.502	153.9	0.379	200	14.91	35.64	26.502	153.9	0.379
250	14.39	35.56	26.554	149.0	0.422	250	14.70	35.62	26.533	151.0	0.459	250	14.70	35.62	26.533	151.0	0.459
300	13.59	35.38	26.584	146.1	0.499	300	14.11	35.46	26.537	150.6	0.538	300	14.11	35.46	26.537	150.6	0.538
350	11.80	35.07	26.700	135.1	0.574	350	11.84	35.05	26.677	137.3	0.615	350	11.84	35.05	26.677	137.3	0.615
400	10.28	34.84	26.798	125.8	0.644	400	10.29	34.80	26.765	128.9	0.686	400	10.29	34.80	26.765	128.9	0.686
450	9.19	34.72	26.888	117.3	0.709	450	8.84	34.57	26.822	123.1	0.753	450	8.84	34.57	26.822	123.1	0.753
500	7.64	34.50	26.955	110.9	0.770	500	7.25	34.45	26.972	109.4	0.815	500	7.25	34.45	26.972	109.4	0.815
550	6.84	34.42	27.006	106.2	0.829	550	6.24	34.36	27.038	103.1	0.872	550	6.24	34.36	27.038	103.1	0.872
600	5.59	34.31	27.081	99.1	0.884	600	5.23	34.25	27.077	99.5	0.927	600	5.23	34.25	27.077	99.5	0.927
650	5.25	34.30	27.114	95.9	0.937	650	4.77	34.23	27.114	96.0	0.979	650	4.77	34.23	27.114	96.0	0.979
700	4.72	34.25	27.135	93.9	0.988	700	4.53	34.23	27.140	93.4	1.030	700	4.53	34.23	27.140	93.4	1.030
750	4.70	34.24	27.169	90.7	1.038	750A	4.31	34.22	27.156	91.9	1.080	750A	4.31	34.22	27.156	91.9	1.080
800	4.30	34.24	27.173	90.3	1.087	800A	4.06	34.21	27.175	90.2	1.129	800A	4.06	34.21	27.175	90.2	1.129
850	4.06	34.25	27.206	87.2	1.135	850A	3.65	34.20	27.208	87.0	1.177	850A	3.65	34.20	27.208	87.0	1.177
900A	3.80	34.27	27.249	83.1	1.181	900A	3.51	34.21	27.230	84.9	1.223	900A	3.51	34.21	27.230	84.9	1.223
950A	3.57	34.27	27.272	81.0	1.226	950A	3.48	34.26	27.271	81.0	1.268	950A	3.48	34.26	27.271	81.0	1.268
1000A	3.38	34.28	27.298	78.5	1.270	1000A	3.37	34.27	27.291	79.2	1.312	1000A	3.37	34.27	27.291	79.2	1.312
1100A	3.23	34.33	27.352	73.4	1.353	1100A	3.11	34.32	27.355	73.1	1.395	1100A	3.11	34.32	27.355	73.1	1.395
1200A	2.94	34.34	27.387	70.1	1.433	1200A	2.97	34.38	27.416	67.3	1.473	1200A	2.97	34.38	27.416	67.3	1.473
1300A	2.82	34.43	27.469	62.3	1.507	1300A	2.78	34.42	27.465	62.7	1.546	1300A	2.78	34.42	27.465	62.7	1.546
1400A	2.76	34.49	27.522	57.2	1.575	1400A	2.73	34.48	27.517	57.7	1.614	1400A	2.73	34.48	27.517	57.7	1.614
1500A	2.77	34.54	27.561	53.5	1.639	1500A	2.69	34.53	27.560	53.6	1.679	1500A	2.69	34.53	27.560	53.6	1.679
1600A	2.81	34.60	27.605	49.4	1.700	1600A	2.70	34.57	27.591	50.7	1.740	1600A	2.70	34.57	27.591	50.7	1.740
1700A	2.73	34.63	27.636	46.4	1.756	1700A	2.66	34.61	27.625	47.5	1.799	1700A	2.66	34.61	27.625	47.5	1.799
1800A	2.77	34.67	27.665	43.7	1.815	1800A	2.75	34.67	27.666	43.6	1.856	1800A	2.75	34.67	27.666	43.6	1.856
1900A	2.80	34.71	27.694	41.0	1.869	1900A	2.73	34.70	27.692	41.1	1.909	1900A	2.73	34.70	27.692	41.1	1.909
2000A	2.89	34.76	27.726	38.0	1.921	2000A	2.77	34.74	27.720	38.4	1.962	2000A	2.77	34.74	27.720	38.4	1.962
2100A	2.98	34.81	27.757	35.0	1.971	2100A	2.78	34.78	27.751	35.5	2.012	2100A	2.78	34.78	27.751	35.5	2.012
2200A	2.99	34.83	27.772	33.5	2.020	2200A	2.74	34.80	27.771	33.7	2.060	2200A	2.74	34.80	27.771	33.7	2.060
2300A	3.00	34.85	27.787	32.1	2.069	2300A	2.80	34.81	27.774	33.4	2.108	2300A	2.80	34.81	27.774	33.4	2.108
2400A	2.88	34.85	27.798	31.1	2.117	2400A	2.79	34.83	27.790	31.8	2.156	2400A	2.79	34.83	27.790	31.8	2.156
2500A	2.78	34.86	27.815	29.5	2.163	2500A	2.77	34.85	27.808	30.1	2.203	2500A	2.77	34.85	27.808	30.1	2.203
2600A	2.59	34.83	27.808	30.1	2.209	2600A	2.64	34.84	27.812	29.8	2.248	2600A	2.64	34.84	27.812	29.8	2.248
2700A	2.50	34.82	27.808	30.2	2.254	2700A	2.55	34.84	27.820	29.1	2.294	2700A	2.55	34.84	27.820	29.1	2.294
2800A	2.41	34.82	27.816	29.4	2.300	2800A	2.46	34.83	27.819	29.1	2.339	2800A	2.46	34.83	27.819	29.1	2.339
2900A	2.33	34.83	27.830	28.0	2.344	2900A	2.29	34.82	27.826	28.5	2.383	2900A	2.29	34.82	27.826	28.5	2.383
3000A	2.21	34.82	27.832	27.6	2.387	3000A	2.13	34.81	27.831	28.0	2.426	3000A	2.13	34.81	27.831	28.0	2.426
3100A	1.99	34.79	27.826	26.4	2.430	3100A	1.91	34.78	27.824	26.6	2.468	3100A	1.91	34.78	27.824	26.6	2.468
3200A	1.89	34.81	27.850	26.2	2.471	3200A	1.71	34.76	27.824	26.7	2.509	3200A	1.71	34.76	27.824	26.7	2.509
3300A	1.80	34.80	27.849	26.3	2.510	3300A	1.54	34.74	27.820	29.0	2.550	3300A	1.54	34.74	27.820	29.0	2.550
3400A	1.60	34.77	27.840	27.1	2.549	3400A	1.38	34.74	27.832	27.9	2.589	3400A	1.38	34.74	27.832	27.9	2.589
3500A	1.45	34.76	27.843	26.8	2.588	3500A	1.26	34.74	27.839	27.2	2.626	3500A	1.26	34.74	27.839	27.2	2.626
3600A	1.29	34.75	27.846	26.5	2.625	3600A	1.15	34.73	27.840	27.1	2.662	3600A	1.15	34.73	27.840	27.1	2.662
3700A	1.08	34.73	27.845	26.7	2.660	3700A	1.02	34.72	27.841	27.1	2.697	3700A	1.02	34.72	27.841	27.1	2.697
3800A	0.95	34.72	27.845	26.6	2.695	3800A	0.89	34.71	27.841	27.0	2.731	3800A	0.89	34.71	27.841	27.0	2.731
3900A	0.79	34.70	27.839	27.2	2.728	3900A	0.76	34.70	27.841	27.0	2.764	3900A	0.76	34.70	27.841	27.0	2.764
4000A	0.65	34.69	27.840	27.1	2.760	4000A	0.61	34.69	27.842	26.9	2.796	4000A	0.61	34.69	27.842	26.9	2.796
4100A	0.55	34.69	27.846	26.5	2.791	4100A	0.52	34.68	27.842	27.1	2.827	4100A	0.52	34.68	27.842	27.1	2.827
4200A	0.44	34.69	27.853	25.9	2.821	4200A	0.41	34.68	27.846	26.5	2.856	4200A	0.41	34.68	27.846	26.5	2.856
4300A	0.34	34.68	27.850	26.2	2.849	4300A	0.34	34.67	27.842	26.9	2.885	4300A	0.34	34.67	27.842	26.9	2.885
4400A	0.27	34.68	27.854	25.8	2.876	4400A	0.28	34.67	27.846	26.6	2.915	4400A	0.28	34.67	27.846	26.6	2.915
4500A	0.19	34.68	27.859	25.4	2.902	4500A	0.24	34.67	27.849	26.4	2.940	4500A	0.24	34.67	27.849	26.4	2.940
4600A	0.16	34.68	27.860														

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
37 16.5S		45 19.2W		12/ 8/72		0440 0733		GMT	5129M	120	14KT	2	000 0 8						
Z	T	S	O2	P04	S103	N02	N03	CT	Z	T	S	O2	S10T	DT	ED				
0	15.72	34.856	5.94	0.29	1.7	1.6	228.3	0	15.72	34.856	5.94	25.719	228.3	0.000					
10	15.71	34.859	5.94	0.30	1.7	1.6	227.9	10	15.71	34.859	5.94	25.724	227.9	0.023					
21	15.69	34.852	5.97	0.28	1.7	1.5	227.9	20	15.69	34.852	5.97	25.723	227.9	0.046					
52	13.86	34.871	6.19	0.40	1.8	3.4	186.7	30	15.24	34.845	6.05	25.817	219.0	0.068					
82	13.00	35.014	5.95	0.56	2.0	5.6	161.5	50	14.00	34.865	6.18	26.101	192.0	0.109					
103	12.62	35.053	5.85	0.61	2.4	7.4	151.4	75	13.14	34.981	6.02	26.367	166.7	0.155					
135	11.70	34.995	5.71	0.79	3.1	10.1	138.8	100	12.67	35.051	5.86	26.516	152.6	0.195					
166	10.96	34.915	5.69	0.90	3.6	12.0	131.8	125	12.00	35.022	5.75	26.624	142.3	0.233					
208	10.30	34.857	5.68	1.00	4.8	13.4	124.9	150	11.32	34.956	5.70	26.702	135.0	0.268					
260	7.96	34.479	5.65	1.32	6.6	18.5	117.0	200	10.45	34.875	5.68	26.796	126.1	0.336					
311	7.01	34.370	5.94	1.44	7.8	20.5	112.1	250	8.42	34.550	5.61	26.877	118.4	0.399					
415	5.60	34.265	6.14	1.61	10.1	25.8	102.6	300	7.15	34.583	5.92	26.935	113.1	0.459					
520	5.14	34.283	5.85	1.76	14.1	25.9	96.0	400	5.75	34.273	6.13	27.031	103.8	0.573					
559A	4.71	34.246	5.99	1.80	15.0	24.8	94.1	500	5.23	34.283	5.89	27.102	97.0	0.679					
622	4.43	34.239	5.95	1.84	17.3	27.4	91.7	600	4.53	34.241	5.96	27.149	92.6	0.779					
662A	4.00	34.217	6.13	1.86	17.8	22.6U	89.1	700	3.86	34.215	6.05	27.199	87.9	0.876					
723	3.83	34.218	6.00	1.94	21.3	28.0	87.4	800	3.59	34.240	5.68	27.245	83.5	0.967					
765A	3.73	34.232	5.78	1.90	24.1	28.0	85.3	1000	2.92	34.293	5.22	27.350	73.6	1.137					
867A	3.29	34.250	5.56	2.10	32.0	28.9	79.9	1200	2.75	34.410	4.66	27.459	63.2	1.267					
970A	2.97	34.277	5.31	2.13	38.4	31.3	75.1	1500	2.69	34.570	4.40	27.590	50.8	1.463					
1174A	2.76	34.394	4.71	2.27	51.9	30.6U	64.5	1750	2.74	34.674	4.45	27.670	43.2	1.625					
1378A	2.70	34.514	4.42	2.31	61.6	33.0	54.9	2000	2.95	34.791	4.89	27.745	36.1	1.755					
1684A	2.68	34.638	4.36	2.19	67.2	31.4	45.4	2250	2.91	34.842	5.21	27.790	31.9	1.876					
1988A	2.95	34.788	4.87	1.86	54.9	27.2	36.4	2500	2.68	34.844	5.25	27.811	29.8	1.992					
2292A	2.60	34.848	5.25	1.70	48.9	25.1	31.4	2750	2.40	34.828	5.21	27.823	28.6	2.104					
2495A	2.34	34.845	5.25	1.72	55.4	25.0	29.8	3000	2.06	34.803	5.11	27.831	27.9	2.211					
2799A	2.34	34.825	5.20	1.78	65.1	26.5	28.5	3250	1.62	34.764	4.95	27.834	27.7	2.312					
3104A	1.89	34.790	5.05	1.95	83.2	28.6	27.7	3500	1.19	34.729	4.88	27.836	27.5	2.406					
3409A	1.33	34.737	4.87	2.14	106.2	30.0	27.8	3750	0.87	34.711	4.96	27.843	26.9	2.493					
3715A	0.91	34.713	4.95	2.22	117.8	31.7	26.9	4000	0.58	34.693	5.05	27.846	26.5	2.572					
4022A	0.554	34.691	5.06	2.24	123.6	31.5U	26.5	4250	0.34	34.683	5.15	27.851	26.0	2.645					
4331A	0.288	34.680	5.18	2.28	128.6	32.8	25.9	4500	0.22	34.678	5.24	27.854	25.8	2.712					
4641A	0.194	34.676	5.27	2.29	129.8	33.2	25.7	4750	0.19	34.675	5.27	27.854	25.8	2.777					
4953A	0.171	34.671	5.27	2.30	131.5	30.3U	26.0	5000	0.17	34.671	5.28	27.852	26.0	2.841					
5058A	0.168	34.670	5.30	2.30	130.3	29.0U	26.0												

RV MELVILLE										CATO EXPEDITION VI									
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
35 53.0S		46 37.9W		12/ 8/72		1754 2056		GMT	4915M	130	11KT	0	130 6 9						
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	S10T	DT	CG	CG			
0	19.76	36.104	5.38	0.11	1.2	0.0	231.5	0	19.76	36.104	5.38	25.684	231.5	0.00					
31	19.03	36.044	5.47	0.11	0.7	0.0	217.8	10	19.50	36.084	5.42	25.737	226.5	0.023					
63	18.48	35.975	5.48	0.12	0.9	0.0	209.6	20	19.27	36.064	5.45	25.784	222.1	0.045					
104	17.69	36.073	5.20	0.19	1.1	1.5	183.8	30	19.05	36.045	5.47	25.824	218.2	0.068					
136	16.76	35.909	5.21	0.27	1.4	2.4	174.4	50	18.69	35.995	5.48	25.877	213.2	0.111					
167	16.41	35.870	5.25	0.29	1.6	2.8	169.4	75	18.26	36.010	5.40	25.994	202.1	0.163					
209	15.39	35.680	5.11	0.42	1.8	4.6	161.1	100	17.78	36.065	5.23	26.160	186.3	0.213					
261	14.93	35.637	5.30	0.42	1.8	4.9	154.5	125	17.06	35.966	5.21	26.260	176.9	0.259					
312	14.65	35.606	5.50	0.45	1.9	5.3	150.9	150	16.59	35.889	5.23	26.311	172.0	0.304					
416	13.81	35.439	5.28	0.58	2.4	7.4	146.1	200	15.61	35.720	5.14	26.408	162.8	0.390					
518	10.89	34.936	5.33	1.00	4.6	13.8	129.0	250	14.98	35.636	5.24	26.484	155.6	0.473					
621	7.75	34.528	5.26	1.47	9.2	21.8	110.4	300	14.71	35.613	5.46	26.526	151.6	0.554					
663A	6.53	34.404	5.46	1.63	11.1	22.6	103.4	400	14.02	35.482	5.33	26.573	147.2	0.714					
724	5.69	34.315	5.76	1.67	11.6	24.3	99.9	500	11.49	35.029	5.32	26.728	132.5	0.865					
766A	5.26	34.299	5.76	1.67	12.5	24.4	96.1	600	8.39	34.601	5.27	26.922	114.2	1.000					
869A	4.54	34.255	5.79	1.77	17.1	26.6	91.6	700	5.94	34.342	5.66	27.062	100.9	1.118					
972A	4.01	34.262	5.56	2.03	23.5	29.0	85.8	800	4.99	34.282	5.77	27.130	94.4	1.225					
1075A	3.63	34.276	5.34	2.04	30.0	31.1	81.1	1000	3.90	34.265	5.50	27.234	84.5	1.421					
1177A	3.26	34.304	5.16	2.15	36.9	32.1	75.6	1200	3.20	34.315	5.10	27.342	74.3	1.596					
1383A	2.90	34.415	4.67	2.30	51.1	34.4	64.1	1500	2.79	34.481	4.51	27.512	58.2	1.822					
1588A	2.76	34.531	4.44	2.25	59.5	33.8	54.1	1750	2.83	34.627	4.51	27.624	47.6	1.979					
1895A	2.98	34.711	4.57	2.00	56.4	29.8	42.4	2000	3.14	34.701	4.87	27.719	38.6	2.120					
2202A	3.39	34.891	5.46	1.55	32.5	32.2	32.8	2250	3.36	34.902	5.54	27.793	31.5	2.248					
2405A	3.34	34.926	5.67	1.42	28.4	21.8	29.4	2500	3.18	34.908	5.60	27.817	29.2	2.369					
2610A	2.97	34.887	5.49	1.62	41.6	23.5	29.1	2750	2.83	34.885	5.53	27.831	28.0	2.487					
2917A	2.69	34.866	5.59	1.59	45.5	23.3	26.7	3000	2.59	34.877	5.56	27.846	26.5	2.600					
3225A	2.21	34.844	5.39	1.68	61.1	25.1	26.0	3250	2.14	34.835	5.35	27.850	26.1	2.707					
3533A	1.35	34.766	4.91	2.09	104.5	28.8	27.2	3500	1.44	34.756	4.96	27.840	27.1	2.807					
3842A	0.847	34.712	4.96	2.19	116.1	32.2	26.6	3750	0.97	34.720	4.95	27.843	26.9	2.897					
4153A	0.415	34.687	5.07	2.25	125.7	33.8	26.0	4000	0.61	34.696	5.01	27.849	26.3	2.978					
4463A	0.224	34.678	5.22	2.28	127.2	33.4	25.7	4250	0.34	34.683	5.12	27.853	25.9	3.050					
4776A	0.162	34.676	5.24	2.450	131.2	33.6	25.5	4500	0.21	34.678	5.22	27.855	25.7	3.117					
4881A	0.162		5.23	2.29	129.9	33.4		4750	0.16	34.677	5.24	27.857	25.5	3.161					

49 STD						CATO EXPEDITION VI						50 STD					
LATITUDE 37 16.5S		LONGITUDE 45 19.2W		MO/DAY/YR 12/08/72		START TIME 0302 GMT		LATITUDE 35 53.0S		LONGITUDE 46 37.9W		MO/DAY/YR 12/08/72		START TIME 1619 GMT			
Z	T	S	SIGMA T	DT	DU			Z	T	S	SIGMA T	DT	DU				
0	15.67	34.88	25.749	225.5	0.000			0	19.76	36.11	25.689	231.1	0.000				
10	15.71	34.89	25.747	225.6	0.023			10	19.71	36.10	25.694	230.6	0.023				
20	15.76	34.91	25.751	225.2	0.045			20	19.45	36.10	25.762	224.1	0.046				
30	16.29	35.09	25.768	223.6	0.068			30	19.10	36.05	25.815	219.1	0.068				
40	15.68	34.91	25.770	223.5	0.090			40	18.63	36.01	25.853	215.4	0.090				
50	13.74	34.82	26.121	190.1	0.111			50	18.72	35.99	25.866	214.2	0.112				
60	13.54	34.92	26.240	178.8	0.130			60	18.61	35.96	25.871	213.6	0.133				
70	12.97	34.92	26.356	167.8	0.147			70	17.94	35.87	25.970	204.4	0.154				
80	12.95	35.04	26.452	158.6	0.164			80	17.89	36.04	26.112	190.9	0.174				
90	12.65	35.03	26.504	153.7	0.179			90	17.76	36.05	26.147	187.6	0.194				
100	12.63	35.08	26.547	149.6	0.195			100	17.73	36.09	26.190	183.5	0.212				
125	12.32	35.05	26.585	146.1	0.233			125	17.08	35.96	26.248	177.9	0.259				
150	11.47	34.96	26.677	137.3	0.269			150	16.63	35.91	26.317	171.4	0.303				
200	10.51	34.91	26.812	124.5	0.336			200	16.59	35.70	26.396	163.9	0.390				
250	8.63	34.60	26.884	117.7	0.399			250	16.00	35.62	26.467	157.2	0.474				
300	7.17	34.38	26.928	113.5	0.459			300	14.80	35.62	26.511	153.0	0.556				
350	6.76	34.39	26.993	107.4	0.517			350	14.65	35.60	26.550	149.3	0.636				
400	5.69	34.27	27.037	103.2	0.572			400	14.25	35.52	26.553	145.0	0.716				
450	5.18	34.26	27.090	98.2	0.625			450	12.64	35.19	26.630	141.8	0.795				
500	5.05	34.27	27.113	96.0	0.677			500	11.27	34.91	26.675	137.5	0.870				
550	4.71	34.25	27.136	93.8	0.727			550	9.67	34.69	26.802	125.4	0.942				
600	4.40	34.22	27.147	92.8	0.776			600	7.91	34.52	26.931	113.2	1.007				
650	4.05	34.21	27.176	90.1	0.825			650A	6.81	34.47	27.049	102.1	1.066				
700	3.92	34.21	27.189	88.8	0.873			700A	6.06	34.37	27.069	100.1	1.121				
750A	3.78	34.23	27.219	86.0	0.920			750A	5.30	34.29	27.100	97.3	1.175				
800A	3.43	34.22	27.245	83.5	0.965			800A	4.97	34.29	27.138	93.6	1.227				
850A	3.38	34.26	27.282	80.0	1.009			850A	4.66	34.26	27.166	91.0	1.278				
900A	3.14	34.25	27.297	78.6	1.052			900A	4.38	34.27	27.188	88.9	1.327				
950A	3.01	34.27	27.324	76.0	1.093			950A	4.16	34.27	27.212	86.7	1.376				
1000A	3.01	34.31	27.356	73.0	1.134			1000A	3.94	34.27	27.235	84.5	1.423				
1100A	2.84	34.35	27.403	68.5	1.211			1100A	3.57	34.29	27.288	79.5	1.513				
1200A	2.76	34.40	27.450	64.0	1.284			1200A	3.18	34.32	27.349	73.7	1.598				
1300A	2.68	34.46	27.505	58.6	1.353			1300A	3.02	34.38	27.411	67.8	1.677				
1400A	2.70	34.52	27.551	54.5	1.418			1400A	2.89	34.43	27.463	62.9	1.751				
1500A	2.72	34.59	27.605	49.4	1.479			1500A	2.77	34.49	27.521	57.3	1.821				
1600A	2.68	34.61	27.625	47.5	1.537			1600A	2.74	34.53	27.556	54.0	1.886				
1700A	2.74	34.67	27.667	43.5	1.592			1700A	2.79	34.60	27.607	49.2	1.948				
1800A	2.77	34.70	27.689	41.5	1.646			1800A	2.84	34.66	27.650	45.1	2.006				
1900A	2.81	34.75	27.725	38.0	1.698			1900A	2.96	34.72	27.687	41.6	2.061				
2000A	2.87	34.78	27.743	36.3	1.747			2000A	2.97	34.75	27.710	39.4	2.115				
2100A	2.93	34.82	27.770	33.8	1.796			2100A	3.25	34.65	27.764	34.3	2.167				
2200A	2.95	34.83	27.776	33.2	1.845			2200A	3.41	34.89	27.780	32.8	2.217				
2300A	2.85	34.84	27.793	31.6	1.892			2300A	3.34	34.91	27.803	30.6	2.267				
2400A	2.82	34.85	27.804	30.6	1.939			2400A	3.33	34.93	27.820	29.0	2.315				
2500A	2.71	34.84	27.805	30.4	1.985			2500A	3.28	34.93	27.824	28.6	2.363				
2600A	2.54	34.83	27.812	29.7	2.030			2600A	2.92	34.88	27.818	29.1	2.410				
2700A	2.53	34.84	27.821	28.9	2.075			2700A	2.95	34.91	27.840	27.1	2.456				
2800A	2.35	34.82	27.821	29.0	2.119			2800A	2.71	34.87	27.829	28.1	2.502				
2900A	2.17	34.81	27.858	28.3	2.163			2900A	2.74	34.90	27.851	26.1	2.547				
3000A	2.01	34.79	27.824	28.6	2.205			3000A	2.64	34.89	27.852	26.0	2.591				
3100A	1.92	34.79	27.832	27.9	2.247			3100A	2.53	34.88	27.853	25.9	2.635				
3200A	1.71	34.77	27.832	27.9	2.287			3200A	2.33	34.86	27.854	25.8	2.679				
3300A	1.47	34.74	27.825	28.5	2.327			3300A	2.01	34.82	27.848	26.3	2.721				
3400A	1.34	34.74	27.835	27.6	2.365			3400A	1.60	34.77	27.840	27.1	2.761				
3500A	1.21	34.73	27.836	27.5	2.402			3500A	1.43	34.75	27.836	27.5	2.799				
3600A	1.08	34.71	27.829	28.2	2.438			3600A	1.24	34.74	27.842	27.0	2.837				
3700A	0.97	34.71	27.836	27.5	2.473			3700A	1.10	34.73	27.843	26.8	2.872				
3800A	0.83	34.70	27.837	27.4	2.507			3800A	0.95	34.72	27.845	26.6	2.907				
3900A	0.70	34.70	27.845	26.7	2.540			3900A	0.75	34.70	27.842	26.9	2.940				
4000A	0.57	34.69	27.845	26.7	2.571			4000A	0.64	34.70	27.849	26.3	2.971				
4100A	0.47	34.69	27.851	26.1	2.601			4100A	0.49	34.69	27.850	26.2	3.001				
4200A	0.36	34.68	27.848	26.4	2.629			4200A	0.37	34.69	27.857	25.6	3.030				
4300A	0.32	34.68	27.851	26.0	2.657			4300A	0.31	34.68	27.852	26.0	3.057				
4400A	0.26	34.66	27.855	25.7	2.684			4400A	0.26	34.68	27.855	25.7	3.084				
4500A	0.22	34.68	27.857	25.5	2.710			4500A	0.20	34.68	27.858	25.4	3.110				
4600A	0.19	34.67	27.851	26.1	2.736			4600A	0.18	34.68	27.859	25.3	3.135				
4700A	0.18	34.67	27.851	26.1	2.762			4700A	0.15	34.67	27.853	25.9	3.161				
4800A	0.17	34.67	27.852	26.0	2.788			4800A	0.16	34.68	27.860	25.2	3.186				
4900A	0.16	34.67	27.852	26.0	2.814			4900A	0.16	34.68	27.860	25.2	3.211				
5000A	0.16	34.68	27.860	25.2	2.839												
5100A	0.16	34.67	27.852	26.0	2.864												

LATITUDE 30 10.0S		LONGITUDE 39 21.8W		MO/DAY/YR 12/12/72		MESSENGER 1256 1536		TIME GMT	BOTTOM 4829M	WIND 270	SPFED 19KT	WEATHER 1	DOMINANT WAVES 260 6 6		
Z	T	S	U2	P04	S103	N02	N03	DT	Z	T	S	U2	S1GT	DT	DU
0	21.12	36.049	5.22	0.01			0.0	270.2	0	21.12	36.049	5.22	25.277	270.2	0.000
10	21.10	36.045	5.21	0.00	0.8		0.0	270.0	10	21.10	36.045	5.21	25.280	270.0	0.027
51	20.94	36.090	5.26	0.01			0.0	262.6	20	21.06	36.054	5.22	25.299	268.2	0.054
62	19.88	36.230	5.42	0.01	1.0		0.0	225.4	30	21.02	36.065	5.23	25.318	266.4	0.081
103	17.60	35.890	5.45	0.09			0.0	195.0	50	20.94	36.087	5.26	25.356	262.8	0.134
134	16.91	35.807	5.28	0.18	1.3		0.7	185.2	75	18.93	36.038	5.43	25.850	215.8	0.194
165	16.05	35.683	5.10	0.34			3.0	175.1	100	17.70	35.889	5.45	26.045	197.2	0.247
207	15.46	35.640	5.14	0.35	1.7		3.8	165.5	125	17.07	35.826	5.34	26.148	187.5	0.296
259	14.90	35.582	5.06	0.47			5.5	157.9	150	16.45	35.739	5.18	26.228	179.9	0.343
311	14.33	35.508	5.07	0.53	2.4		6.7	151.6	200	15.53	35.642	5.13	26.366	166.8	0.432
415	12.82	35.253	4.96	0.75			10.4	140.5	250	14.99	35.592	5.08	26.448	159.0	0.517
519	10.84	34.950	4.83	1.08	6.0		15.7	127.1	300	14.46	35.525	5.07	26.513	152.8	0.599
571	9.43	34.765	4.82	1.28			19.4	117.7	400	13.07	35.295	4.98	26.626	142.1	0.757
622	8.16	34.617	4.86	1.46	10.2		22.2	109.6	500	11.26	35.010	4.65	26.755	129.9	0.904
725	5.95	34.385	5.28	1.68	13.9		25.8	97.7	600	8.69	34.678	4.84	26.934	112.9	1.037
826	4.58	34.271	5.66	1.83	17.6		27.7	90.9	700	6.43	34.432	5.16	27.070	100.1	1.154
927	4.02	34.287	5.37		25.6		30.5	84.0	800	4.86	34.291	5.60	27.151	92.4	1.260
1101A	3.33	34.352	4.88	2.10	38.8		31.4	72.6	1000	3.69	34.309	5.15	27.290	79.2	1.448
1203A	3.10	34.420	4.66	2.10	45.0		32.2	65.4	1200	3.10	34.418	4.67	27.433	65.6	1.610
1306A	3.00	34.476	4.49	2.05	50.7		32.1	60.3	1500	2.85	34.605	4.46	27.605	49.3	1.809
1409A	2.86	34.546	4.41	2.14	54.8		32.4	53.9	1750	2.91	34.743	4.79	27.710	39.5	1.947
1562A	2.85	34.640	4.50	2.00	54.9		31.8	46.7	2000	2.97	34.828	5.18	27.773	33.5	2.070
1715A	2.90	34.727	4.74	1.79	50.7		28.1	40.5	2250	3.00	34.888	5.56	27.818	29.2	2.186
1921A	2.95	34.802	5.04	1.70	46.2		26.1	35.3	2500	2.97	34.914	5.76	27.842	26.9	2.298
2227A	3.00	34.885	5.54	1.34	35.7		21.4	29.5	2750	2.90	34.925	5.87	27.857	25.4	2.408
2432A	2.97	34.908	5.70	1.31	32.6		20.4	27.5	3000	2.77	34.921	5.88	27.865	24.7	2.518
2636A	2.95	34.926	5.86	1.30	29.5		20.0	25.9	3250	2.55	34.907	5.88	27.873	24.0	2.627
2841A	2.85	34.925	5.87	1.31	30.6		20.1	25.2	3500	2.18	34.871	5.81	27.876	23.7	2.732
3045A	2.74	34.920	5.88	1.29	33.2		19.9	24.6	3750	1.70	34.820	5.61	27.873	23.9	2.830
3250A	2.55	34.907	5.88	1.32	37.2		21.1	24.0	4000	1.12	34.759	5.36	27.865	24.7	2.920
3558A	2.08	34.862	5.78	1.49	53.5		23.6	23.7	4250	0.55	34.704	5.22	27.857	25.5	2.999
3866A	1.44	34.794	5.49	1.74	79.5		26.1	24.2	4500	0.21	34.677	5.19	27.854	25.8	3.068
4174A	0.722	34.718	5.23	2.01	108.1		30.6	25.4	4750	0.24	34.676	5.24	27.852	26.0	3.134
4482A	0.206	34.676	5.19	2.16	123.8		33.4	25.7							
4585A	0.223	34.676	5.19	2.19	123.0		32.5	25.8							
4690A	0.233	34.676	5.24	2.17	123.4		33.1	25.9							
4793A	0.244	34.675	5.24	2.12	123.7		32.6	26.0							



LATITUDE 30 10.0S ?	LONGITUDE 39 21.8E ?	MO/DAY/YR 12/12/72 SIGMA T	START TIME 1109 GMT UT
0	21.12	36.05	25.278
10	21.12	36.05	25.278
20	21.08	36.06	25.296
30	21.06	36.08	25.317
40	21.10	36.10	25.321
50	21.00	36.08	25.333
60	20.10	36.12	25.606
70	19.50	36.20	25.805
80	18.64	36.04	25.925
90	17.95	35.91	26.005
100	17.74	35.90	26.042
120	17.25	35.86	26.131
140	16.44	35.74	26.231
160	15.46	35.67	26.380
180	15.00	35.59	26.444
200	14.51	35.50	26.525
220	13.79	35.41	26.566
240	13.02	35.28	26.624
260	12.18	35.13	26.685
280	11.18	34.99	26.754
300	9.90	34.80	26.835
320	8.70	34.60	26.920
340	7.37	34.50	26.994
360	6.49	34.45	27.076
380	5.58	34.36	27.121
400	4.81	34.30	27.165
420	4.45	34.26	27.189
440	4.17	34.30	27.234
460	4.00	34.32	27.268
480	3.80	34.33	27.296
500	3.55	34.39	27.371
520	3.11	34.41	27.427
540	2.94	34.47	27.486
560	2.90	34.54	27.549
580	2.85	34.60	27.602
600	2.85	34.66	27.649
620	2.89	34.72	27.694
640	2.91	34.76	27.724
660	2.92	34.80	27.755
680	2.96	34.84	27.780
700	3.00	34.86	27.795
720	3.01	34.88	27.810
740	2.96	34.89	27.821
760	2.98	34.90	27.829
780	2.97	34.91	27.838
800	2.96	34.93	27.855
820	2.92	34.92	27.850
840	2.86	34.93	27.864
860	2.81	34.92	27.860
880	2.75	34.92	27.866
900	2.69	34.91	27.863
920	2.62	34.91	27.869
940	2.50	34.90	27.872
960	2.36	34.89	27.876
980	2.20	34.87	27.875
1000	1.94	34.85	27.875
1020	1.76	34.83	27.876
1040	1.55	34.80	27.869
1060	1.41	34.79	27.870
1080	1.26	34.77	27.864
1100	0.97	34.74	27.860
1120	0.63	34.71	27.857
1140	0.40	34.69	27.855
1160	0.27	34.68	27.854
1180	0.21	34.67	27.849
1200	0.22	34.68	27.857
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